A Lecture
ON
THE MUCOUS CHANNELS AND THE BLOOD STREAM AS ALTERNATIVE ROUTES OF INFECTION.*

[WITH SPECIAL PLATE.]

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LEAVING on one side wounds and the abraded skin, it is recognized on all hands that the mucous membranes provide the usual channels by which the micro-organisms of disease gain access to the human body.

The problem now before us, however, represents only a small part of this larger question of the route of infection. It relates to the manner in which organisms reach epithelial secreting and excreting organs through their mucous ducts, and the manner in which organisms, introduced into one portion of a mucous canal, like the intestine, find their way to other portions of the tube at a higher level. In other words, we propose to inquire whether the organisms which bring about infective diseases of the liver, the kidney, the gall bladder, the urinary bladder, the mammary, salivary, and other glands, reach these structures by the blood stream, or by the mucous canals through which these organs communicate with the surface of the body.

There are three recognized ways by which the disease organism gains access to the recesses of a secreting gland, apart from the agency of the blood and lymph channels: (1) It may, if a motile organism, transport itself by its own movements as the spermatozoon traverses the oviduct. (2) It may be passively transported by muscular or peristaltic movement, or by the ciliary action of the epithelium lining the canal, as the ovum is carried to the uterus. (3) It may spread over the surface of the mucous membrane by a process of continuous growth, as the diphtheria bacillus spreads over the fauces. But in addition to these three recognized methods there is a fourth, which in my opinion is more frequent than many pathologists and clinicians are inclined to think. In the Address in Surgery to the British Medical Association in 1905 I brought forward evidence to show that small particles of an inert substance like indigo, which is insoluble in the bodily secretions, may under certain circumstances be carried along mucous canals and gland ducts in a direction opposite to that taken by the normal secretion. If non-motile particles of indigo can travel in this manner along mucous surfaces, then it is reasonable to suppose that the organisms of disease can be also transported from the mucous orifices of the body up the intestinal canal and urinary canals to the recesses of organs like the kidney and gall bladder. I also stated, as the result of clinical and pathological observation, that three conditions were necessary for this transportation of foreign particles in a direction opposite to that of the flow of secretion:

1. There must be a reversed mucous current along the channel.
2. There must be some stasis of the normal secretion or excretion in the duct.
3. Or a fistulous communication must exist at the proximal end of the canal by which the contents can reach the surface of the body without passing down the duct.

Since that time further evidence has accumulated which goes to show that active absorption of contents at one part of a mucous tube or canal can play the part of the fistula at the upper end or the stricture at the lower end, and can bring about a backward flow of mucus to take the place of the mucus or secretion which is undergoing absorption or removal at the upper end.

Let us consider for a moment what occurs in the intestinal canal. Rapid absorption of the watery content of the fluid faecal material pouring through the ileo-caecal valve goes on in the caecum and along the whole length of the large bowel. It is probable that, though the muscular movements may vary in activity and possibly in direction at different levels, and at different times, absorption of fluid takes place along the whole canal. It is practically certain also that in diseased states of the bowel absorption may go on at one level and secretion of mucus at another. The occurrence of accelerated absorption in the caecal end and delayed absorption at the rectal end of the tube will provide the necessary conditions for a reversed mucous current along the canal without the necsssity for a reverse peristalsis, or the existence of a fistulous opening.

We already know from experiment that indigo granules are present in the mucus which flows from a caecal fistula in twenty-four to forty-eight hours after they have been introduced into the rectum; this occurs independently of muscular contraction or the flow of faecal material; indeed, it takes place more quickly in an empty and contracted than in a loaded and distended bowel. A fistulous opening probably acts by removing the mucus or fluid at the upper end, and thus causes a flow of mucus along the tube to replace that which has escaped; the suggestion is, therefore, that unequal and rapid absorption in one portion of the tube will act in the same way as a fistula.

There are some points about these ascending mucous currents in the bowel which are of interest in connexion with the subject of malignant and other strictures. It has been pointed out by Messrs. Makins, Wallace, and Sargent,[1] and other observers, that the mucous membrane above and below a malignant ulcer of the lower bowel is often studded with mucous polypi. These may be situated at some distance from, or in close proximity to, the seat of cancer (Figs. 1 and 2). Histologically they are adenomata, generally of a benign type, and even when they grow close to the site of ulceration they often show no infiltration of the mucous or submucous tissues by epithelial cancer cells (Fig. 4). The relation of these benign growths to the primary cancer is one of much interest.

Besides these adenomatous overgrowths the epithelium for some distance above a malignant ulcer often shows a roughened whitish appearance, a leucoplakia visible to the naked eye. The numerous openings of the glands can be seen, and in some cases minute ulcers dot the surface of the mucous membrane. (Fig. 3.) The fact that these changes are generally more marked above than below the stricture no doubt depends upon the presence of some degree of obstruction or faecal stasis, even where no actual constriction of the lumen of the bowel exists. The upward mucous currents probably distribute the infective material or cancer cells over the surface of the mucous membrane. It is at any rate interesting to note the comparative infrequency of these changes below the ulcer, although the cancerous discharges pass through this portion of the bowel to reach the surface. The sharp division between large and small intestine at the ileo-colic valve probably prevents the flooding, under normal conditions, of the ileum by regurgitating faecal fluid; the mucous currents, however, are probably not wholly arrested at this point. Small foreign particles and organisms are thus carried up from the large to the small bowel without the necessity for any reversed peristalsis or regurgitation of faeces. Organisms may also be carried into the appendix by the same means.

The recent debate at the Medical Society of London included some important problems in regard to intestinal stasis.[2] The beneficial results of short-circuiting operations by Lane and other surgeons in many cases have now established the fact that an intimate association does exist between the delayed passage of intestinal contents and a condition of chronic poisoning, and the question arises as to the nature of the poisons, and the part of the intestinal tract in which absorption occurs.

Some observers, notably Daniel, regard the symptoms as the result of repeated infections and reinfections of the intestinal mucous membrane rather than as the result of absorption of the products of food decomposition. This is important in view of the fact that ascending mucous currents occur in the intestinal canal which are capable (apart from stagnation of contents and reversed peristalsis) of transporting organisms from one part of the tube in which they normally occur, to other parts in which they are not normally found.

* Revised since its delivery at the Medical Graduates' College and Polyclinic, London.

Although several speakers drew attention to the frequent association between intestinal stasis and urinary infection, very few facts were brought out which bear crucially on the question of the alternative routes of invasion, namely, the mucous channels or the blood stream. Dr. Eyre has found coliform organisms in considerable numbers in the contents of the small bowel in cases of intestinal stasis; this fact is important in view of the possible transference of organisms by ascending mucous currents in the absence of faecal regurgitation through the ileo-colic valve.

Stasis in the Small Intestine and Duodenal Ulceration.

These ascending mucous currents also have an important bearing on morbid conditions of the upper bowel. Moynihan, the Mayos, Paterson, and other surgeons have pointed out the frequent association between appendicitis and duodenal ulcer, and it has been suggested that haematemesis and other gastric and duodenal symptoms, when not associated with oral or naso-pharyngeal sepsis, are due to an ileo-colic sepsis, of which the primary focus is situated in the appendix, and from which organisms are carried to the gastric and duodenal mucous membrane by the blood stream. Dr. Wilkie[3] has recorded a number of cases which suggest that one important pathological factor predisposing to duodenal ulceration is faecal stasis in the colon or ileum. In some of his cases duodenal ulceration was associated with partial obstruction the result of pericolic adhesions, the appendix itself being normal. Arbuthnot Lane also speaks of the importance and frequent occurrence of absorption of toxins (the result of stasis) in the small intestine following obstruction in the colon.[4]

In view of the mucous currents now described, we must, I think, consider the possibility that these organisms reach the duodenum by way of the intestinal canal. We have already seen that there need not necessarily be any faecal regurgitation or reversed peristalsis in a distended canal. The currents will carry foreign particles and organisms up a contracted bowel provided that some stasis exists below, or that a fistula or some irregular reabsorption of contents causing mucus suction exists at some higher point in the channel. It will be objected that if the infecting material travels up the intestine it should leave its effects along the whole length of the small bowel. It may be that minute ulcerative foci do often exist, but, even if no pathological effects are produced, we know that organisms can travel along the urethra without causing urethritis, and only cause symptoms when they reach the bladder. Moreover, the gastric and duodenal epithelium may be less resistant than that of the ileum or jejunum to organisms whose usual habitat is in the caecum.[5]

Infections of the Gall Bladder and Biliary and Pancreatic Ducts.

From duodenal ulcer we pass naturally to a consideration of the etiology of gall stones and infections of the pancreatic and biliary ducts. Naunyn, Lartigau,[6] and others have suggested that gall stones arise in a deposition of biliary salts and cholesterin round a nucleus of attenuated bacteria. It is supposed that organisms gain an entrance into the blood or lymph stream through some abraded mucous or intestinal surface and thus reach the liver, that they are excreted by the liver cells in a state of reduced virulence in which they can set up chemical and physical changes in the bile, but are unable to produce acute infection in the mucous membrane of the gall bladder or the biliary ducts. No doubt organisms—for example, the *Bacillus typhosus* and bacteria of the *coli* group—do under certain conditions reach the liver by way of the portal circulation and are excreted by the liver cells, just as organisms brought to the kidney by the renal circulation are excreted in the urine. The immediate question is, however, whether the organisms around which gall stones are deposited reach the gall bladder from the liver above, or whether they reach it from the duodenum below, by passing along the common and cystic ducts.

Stress has been laid on the fact that infection of the gall bladder (but not gall stones) has been experimentally produced by the injection of organisms into the blood stream in animals in which the cystic duct has previously been tied. Of course it is possible that the epithelium of the gall bladder, like that of the kidney, may excrete pathogenic organisms brought to it by the blood (and if the ligature has been placed on the cystic and not the common duct this must have taken place); but, bearing in mind the rapidity with which infection passes through any constriction of a mucous canal, we can hardly regard this experiment as conclusive proof of the haematogenous origin of all gall bladder infections.

It is an undoubted fact, as shown by W. Mayo[7] and others, that the primary and probably exclusive seat of the formation of gall stones is the gall bladder, and even when they occur in the biliary ducts they occur primarily in the gall bladder. Neither are biliary salts usually deposited from the bile which remains stagnant in the biliary ducts in cases of obstructive jaundice.

Now the gall bladder is a hollow viscus of very slight muscular development; every surgeon must have noticed that when squeezed and partly emptied of its contents during life it remains flabby, and does not contract on the bile which it contains. It is, however, a somewhat elastic organ; it undergoes alternate emptyings and fillings, and this provides ideal conditions for the origination of to-and-fro mucous currents in the cystic duct.

Experiment shows that when, for surgical reasons, a fistula has been established between the fundus of the gall bladder and the surface of the body, indigo granules taken by the mouth can be recovered from the mucus and bile which flows from the fistulous opening.[8] The question is whether foreign particles, and presumably organisms, are ever carried to the gall bladder from the duodenum by way of the cystic duct when no fistula is present—whether, in fact, the alternate filling and emptying of the gall bladder does not act in the same way as the fistulous opening in producing a to-and-fro mucous current.

Even if we suppose that the organisms which produce gall stones, as well as others, reach the gall bladder after excretion by the liver cells the question still arises whether the more acute infections of the gall bladder are produced in the same way.

If they are so caused, it is difficult to understand why organisms which have passed through the blood stream and have been excreted by the liver without causing any violent reaction, retain sufficient activity and virulence to bring about acute infections of the gall bladder. This difficulty does not arise if we assume, as I think there are grounds for doing, that the virulent organisms, together with the mucus and other materials in which they are growing, reach the gall bladder from the duodenum. We must remember that when, as happens in cases of pyelophlebitis, virulent organisms *do* gain access to the portal circulation they produce very marked effects on the liver and cause multiple centres of suppuration. Now it is a significant fact that under such conditions the gall bladder is often free from any acute inflammation. On the other hand, acute infections of the gall bladder (either with or without gall stones) often occur without any other evidence of liver infection. Taken together the clinical facts suggest that organisms may reach the gall bladder by way of the portal circulation after excretion by the liver cells, but that under such circumstances they undergo a reduction in virulence, and while they may possibly serve as the starting point for gall stones they are not apparently able to set up acute infections of the gall bladder. On the other hand, organisms which cause acute cholangitis reach the gall bladder from the duodenum by way of the common and cystic ducts, and we have experimental evidence to show that they can be carried there by ascending mucous currents.

In view of the contradictory results of Doerr (negative) and Chirolanza (positive) with the intravenous injection of organisms after ligature of the cystic duct, the size of the indigo particles which are found in the bile flowing from the gall bladder fistula in the indigo experiments affords some evidence of the route by which these particles have reached the gall bladder. It is common to find large irregular-shaped indigo particles larger than leucocytes, and these retain their blue-black colour, while the much smaller granules which have been ingested by phagocytes are generally of a sky-blue colour. Further, it is important to remember that along with pathogenic organisms carried

up the cystic duct the mucus in which these organisms are growing is carried up with them.

The objection has been made that the contents of the duodenum are normally sterile, but we must remember that some degree of intestinal stasis and intestinal catarrh is present in most of these cases of gall bladder trouble, and the duodenal contents are probably not sterile under such conditions. Gall stones are more common in females than in males in the proportion of 3 to 1. Among married women 90 per cent. date their gall bladder trouble from some particular pregnancy (W. Mayo). Pregnancy predisposes to constipation, and constipation means intestinal stasis, and while intestinal stasis no doubt forms one of the conditions under which organisms are apt to pass through the intestinal epithelium into the blood stream, intestinal stasis, with irregular absorption in the upper reaches of the bowel, also favours the origin of to-and-fro mucous currents by which organisms which normally inhabit the lower bowel are carried to the upper.

There are grounds for thinking that if the condition of the whole intestinal tract were fully investigated in cases of gall stones and gall-bladder disease, not only would appendicular and ileo-colic complications be found in many cases, but in some the whole lining mucous membrane would show signs of widespread catarrh of infective origin.

Typhoid Carriers.

The facts concerning typhoid carriers are of interest in this connexion. Lentz, and later Forster, showed that the gall bladder is the hiding place and breeding ground of the typhoid bacillus in these persons. Moreover, as Schottmüller has shown,[9] typhoid carriers are nearly always of the female sex. In fact, there seems to be a greater chance of organisms (whether excreted by the liver and gall bladder epithelium, or carried up from the bowel) finding their way into the gall bladder in the female than the male. We do not know what the peculiar conditions are which cause this peculiarity, but it is difficult to explain it by differences in the blood stream of men and women. The typhoid bacillus from a typhoid carrier can produce a typical attack of typhoid fever in another susceptible person; it cannot, therefore, have undergone any reduction in virulence in the body of its host; hence the absence of symptoms in the carrier must be attributed to an acquired immunity in the carrier and not to any attenuation of the organism. This means that the typhoid organism is leading a sort of extra-corporeal existence in the gall bladder of the carrier. It lives in the superficial epithelium, and has become acclimatized to the mucus and bile just as it flourishes in the sewage of a contaminated water supply. This acclimatization to a mucus-secreting epithelium environment fits in better with a mucous channel route of entry into the gall bladder than with a haematogenous origin, together with liver or gall-bladder excretion.

The clearing up of two bacteriological points would probably add materially to our knowledge of typhoid fever and typhoid carriers. The first is whether typhoid bacilli in an active and virulent state are present in the vomit and therefore presumably in the duodenal contents of typhoid fever patients. And the second is whether typhoid bacilli from the urine of typhoid fever patients which have presumably been excreted by the renal epithelium after passage through the blood stream, are as virulent as the typhoid bacilli which are present in the stools of the same patients.

The difficulty of permanently getting rid of the typhoid bacillus from the gall bladder is well known; even cholecystotomy and drainage are not always successful. It is interesting to compare the behaviour of the *Bacillus typhosus* which has become adapted to a gall-bladder environment with the behaviour of the *Bacillus coli* which has become adapted to the environment of the urinary bladder or the pelvis of the kidney. In both cases the organism lives and multiplies among secretory epithelial cells, and in a secretion, and not in the deeper tissues of the body, and in both cases it successfully resists the bactericidal action of vaccines and drugs. The difficulty of getting rid of organisms which have become adapted to a secretory epithelial environment is well shown in the case of dysentery. Shiga's and Kruse's bacillus and Flexner's bacillus grow and multiply in the intestinal mucous membrane, and in the mucus and faecal contents of the large bowel; they are not found in the spleen or gall bladder or urine.[10] In dysentery the organism can be recovered from the stools in many cases for some time after the patient has recovered clinically, and in the case of dysentery carriers they may persist in the evacuations for years. The question arises, Why is not the *Bacillus dysentericus* found in the urine and in the gall bladder like the *Bacillus typhosus*, since the persistent diarrhoea gives frequent opportunities for infection of the urinary tract, especially in women, and we should expect, therefore, to encounter some cases of dysenteric pyelitis on the supposition of an ascending infection? The reason that this does not occur may be that the *Bacillus dysentericus*, unlike the *Bacillus typhosus* or the *Bacillus coli*, cannot adapt itself to a urinary or biliary environment. On the haematogenous theory of infection we must suppose that the organism cannot maintain its vitality after running the gauntlet of the blood stream and the renal or hepatic epithelium.

The Influence of Mucus on the Growth of Micro-organisms and the Part played by Mucus in the Protection of Epithelial Cells.

One, perhaps the most important, function of the gall bladder is to secrete mucus. It has been shown experimentally by Opie[11] and clinically by Halstead[12] that pure bile injected into the pancreatic duct produces acute pancreatitis, but Flexner has also shown[13] that bile, when previously mixed with mucus, does not cause this pancreatic change. We know that the presence of high percentages of bile in the blood supplied to the pancreas in jaundice does not set up acute pancreatitis. These facts suggest that *some* inflammatory affections of the pancreas are caused by a regurgitation of bile along the pancreatic duct rather than by organisms which reach the pancreas by way of the blood, and pancreatic calculi may be due to the same cause. Even where no massive regurgitation of bile takes place a reversed mucous current may occur, and organisms may thus reach the pancreas.

The influence of different kinds of mucus—that is, mucus secreted by different kinds of epithelium—on different kinds of pathogenic organisms is a subject which would well repay investigation. Observations carried out for me in the Leicester Infirmary in 1909 show that some samples of freshly obtained mucoid fluid from ovarian cysts form an excellent culture medium for the *Bacillus coli*, while other samples do not form a suitable medium. Observations on a sample of clear mucus obtained under strict aseptic precautions from a distended gall bladder seemed to show that this material exercised some inhibiting influence on the growth of bacilli of the colon group. It would be of interest to know whether organisms which normally inhabit the bowel and can grow in intestinal mucus grow equally well in mucus derived from the urinary tract, and whether the *Micrococcus ureae* will grow in mucus secreted by intestinal epithelium. The gonococcus grows well in urethral mucus, but we do not know—at any rate, observations have not been recorded—to what extent it will grow on rectal mucus; at all events, it does not tend usually to invade the rectum.

The influence of a layer of mucus in protecting the epithelial cells from mechanical and chemical irritation is probably very important. One part of the effect of repeated mechanical irritation in producing cancer may depend on the absence of mucus due to the removal of the mucus-secreting cells. Mucus also differs in its physical characters when secreted under different conditions. Thus the mucus which is poured out by the epithelium lining the bronchial tubes during an attack of acute bronchitis, is very viscid; it adheres to the sides of the vessel even when expectorated into water, while the mucus which is secreted during recovery consists of masses of phlegm which do not stick to each other or adhere to the sides of the vessel. The same is true of the mucus secreted by the bladder during the height and the decline of an attack of cystitis. It is quite possible to judge clinically of the progress of a patient with cystitis by observation of the muco-pus at the bottom of the vessel in which it has been collected. The difference in viscosity may depend on some difference in fibrin content, but the actual physical difference must itself have an important effect on the flow of mucus

currents and on the spread of the organism over the surface of the membrane by continuous growth.

If I may be allowed a digression in the field of comparative anatomy and physiology, I should like to draw attention to two very different kinds of mucus secreted by the salivary glands in some birds. The green woodpecker obtains its food by inserting its long, barbed, whip-like tongue into crevices in the bark of trees and into anthills, and withdrawing it with the insects adhering to it. Now it is interesting to find that in the green woodpecker the salivary glands are enormously developed (Fig. 5). Each is formed of two parts, a larger white portion having the appearance of a salivary gland and a thinner strip of red tissue, like lymph gland, lying alongside the first (Fig. 6). Each gland opens by a separate duct on the floor of the mouth. The secretion of the white gland is an extremely viscid mucus, and serves to stick the insects to the whip-like tongue just like bird-lime. The secretion of the red gland is ordinary non-viscid lubricating mucus; it no doubt helps to clear the tongue of the insects when withdrawn into the mouth, and also aids the passage of the food into the pharynx. Here we find two kinds of mucus secreted by the salivary glands of the same bird; one kind resembles the sticky mucus secreted during acute inflammation, and the other the lubricating mucus secreted during recovery.

These adhesive and lubricating properties seem to be present in varying degrees in all kinds of mucus. Where the contents of the mucous canal are solid or semisolid, as in the large bowel, one important function of mucus is to bind the faeces together (cohesion mucus of Nothnagel),[14] while another and even more important function is to lubricate and render easier the passage of faecal material over the surface of the mucous membrane. In the oviduct in birds it is necessary for the albuminous secretion to adhere to the ovum and not to adhere to the epithelial lining over which the whole mass must glide, and it is interesting to note that indigo granules inserted into the cloaca of the bowel have been found in the lining membrane of the egg laid by the same bird a few days later.

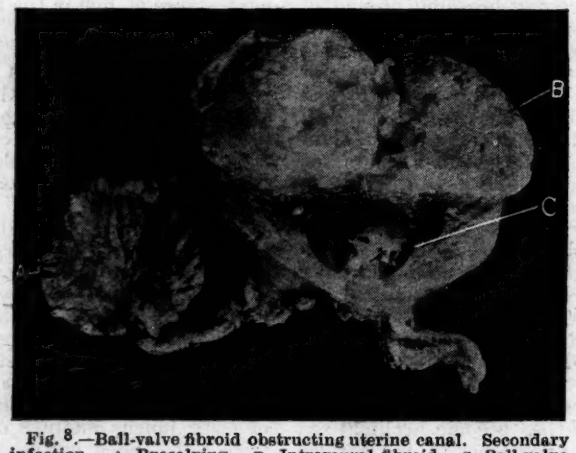

Fig. 8.—Ball-valve fibroid obstructing uterine canal. Secondary infection. A, Pyosalpinx. B, Intramural fibroid. C, Ball-valve fibroid.

Infection of the Genito-Urinary Tract.

In view of the frequent passage of the gonococcus along the genital canal to the fimbriated openings of the Fallopian tubes and the pelvic peritoneum in women, it may seem unnecessary to refer to the occurrence of ascending mucous currents in these organs. Owing, however, to the frequency of surgical operations on the genital canal in the female, it is important to remember that non-motile foreign particles, such as indigo granules, *can* be carried along the whole length of the canal from the os uteri to the pelvic peritoneum in less than forty-eight hours, even when no gross disease of the uterus is present. When we recall the very frequent occurrence of displacements, of tumours, of stenosis, and of other pathological conditions which tend to produce stasis in the contents of the uterus, we can realize the ease with which ascending infections of the genital organs take place in women (Figs. 7 and 8).

We do not know the conditions under which absorption takes place by the pelvic peritoneum, or to what extent absorption in this situation originates a retrograde flow of mucus along the Fallopian tubes, just as the presence of a fistulous opening in the pelvis of the kidney or in the gall bladder sets up a reversed mucous current in the ureter and the cystic duct. It is, however, clearly established that many of the infections of the genital canal in women are mucous and not blood infections, and this has an important bearing on the well-known fact that the female pelvic peritoneum is more tolerant of surgical interference and more capable of resisting infection than the male peritoneum. There is no reason to suppose that organisms pass more freely through the coats of the bowel into the blood stream in women than in men, hence the greater resisting power of the female pelvic peritoneum is probably due to an acquired immunity, the result of the repeated introduction of small doses of infection through the peritoneal openings of the Fallopian tubes.

In a paper on the occurrence of menstrual secretion in the Fallopian tubes in the human subject[15] I drew attention to the frequent occurrence of menstrual fluid in the lumen of healthy Fallopian tubes which had been removed for surgical reasons during the menstrual period (Figs. 12 and 13). At that time I was inclined to entertain the possibility of a true Fallopian tube menstruation; since, however, I ascertained the fact that reversed mucous currents do occur in the Fallopian tubes, I am inclined to regard the occurrence of blood-stained fluid in this situation during menstruation (apart from tubal conception) as the result of regurgitation from the uterine cavity (Figs. 9 and 11). Experiment shows that particles of indigo or carmine inserted within the os uteri reach the Fallopian tubes within twenty-four to forty-eight hours, and under certain conditions they are carried through the fimbriated openings and are deposited on the surface and in the superficial layers of the pelvic peritoneum (Fig. 10). Where non-motile inert particles are carried micro-organisms can be carried also. Sippel[16] and Wildbolz[17] both draw attention to the fairly frequent occurrence of infections of the bladder and urinary tract in newly-married women the result of coitus. It has been supposed by some that the organism gains an entrance into the blood or lymph stream through some wound of the hymen or abrasion of the mucous membrane of the vagina, but this does not explain the fact that the infection *starts* in many cases in the bladder and only reaches the kidney later, and it is especially liable to do so if pregnancy supervenes. The strong probability is, therefore, that the organism enters through the meatus urinarius and travels up the urinary tract, the pressure of the enlarging pregnant uterus in pregnant cases brings about that degree of urinary stasis, especially in the right ureter, which favours an ascending mucous current, and so provides for the transference of the organism to the pelvis of the kidney. Now if the *Bacillus coli* can be rubbed into the meatus during coitus it is difficult to suppose that it cannot be introduced by contact and in other ways in the case of patients who are wanting in personal cleanliness, or who are suffering from nervous and other diseases which predispose to contamination

Pneumococcal peritonitis is certainly commoner in female than in male children; some authorities place the ratio as 2 to 1. At the Toronto meeting of the British Medical Association[18] I pointed out that it is not necessary that evidence of metritis or salpingitis should be present in the cases of female children in whom the absence of any other focus makes it probable that the pneumococcus has reached the peritoneum through the vagina. In a case of this kind in a child of 3 we found the Gram-staining capsulated diplococcus lying on and between the columnar epithelial cells which line the Fallopian tubes, without any signs of invasion of the deeper layers or evidence of inflammation in the mucous membrane. Every surgeon must have operated on early cases of pneumococcal peritonitis in women in which the fibrinous and purulent exudation was confined to the pelvic peritoneum, and in which no other centre of invasion could be found. In such cases it is difficult to resist the conclusion that the organism gained access to the peritoneal cavity by way of the genital canal.

MR. C. J. BOND: MUCOUS CHANNELS AND BLOOD STREAM AS ROUTES OF INFECTION.

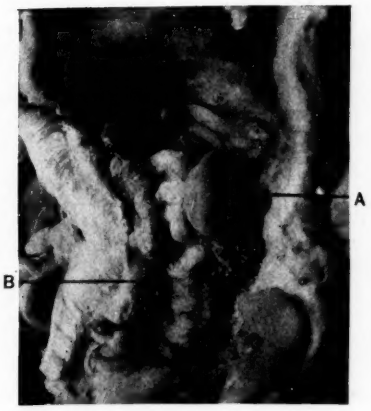

Fig. 1. — Mrs. H. Cancer of colon. A, Benign polypus. B, Malignant ulcer.

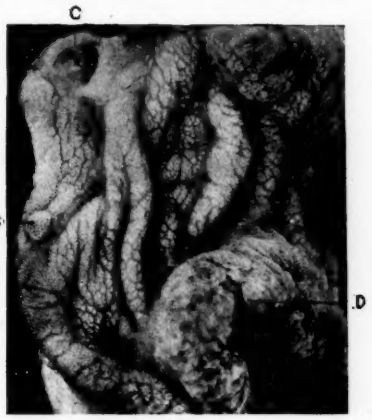

Fig. 2. — Mrs. E. Cancer of sigmoid. C, Adenoma. D, Epithelioma. Shows overgrowth of epithelium (leucoplakia). × 3 diam.

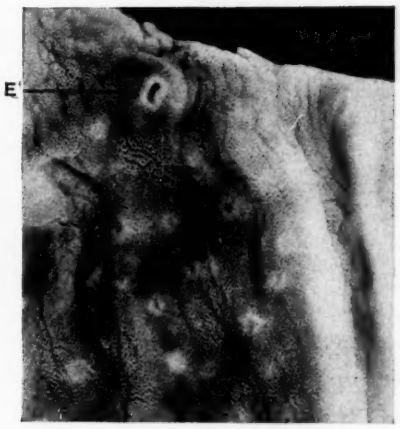

Fig. 3. — Mrs. G. Cancer of rectum. Mucous membrane above cancer. E, Multiple ulcers. × 3 diam.

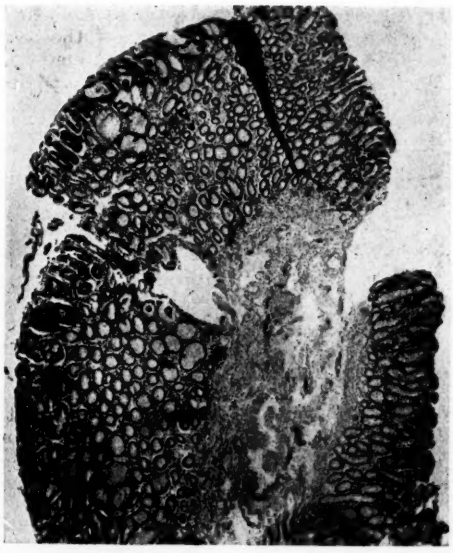

Fig. 4.—Mrs. H. Section of benign polypus. × ⅓ obj. A.oc.

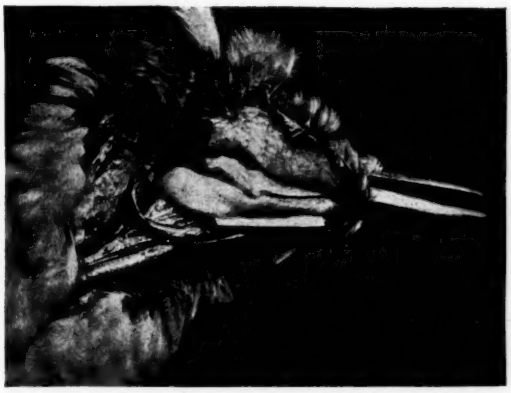

Fig. 5.—Green woodpecker. Dissection of right salivary gland. Shows white gland (large) and red gland (small stripe) lying on white paper.

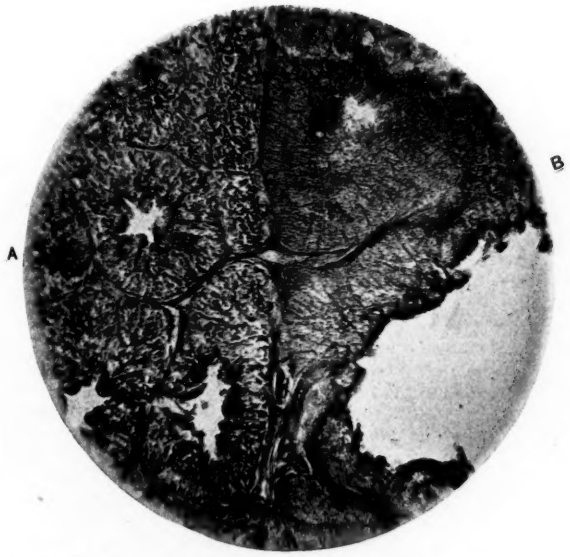

Fig. 6.—Salivary gland, green woodpecker. Transverse section through red and white glands. A, Red gland. B, White gland. ⅓ obj. A.oc.

Fig. 7.—M. B. Mucous polypus obstructing internal os uteri. Secondary endometritis.

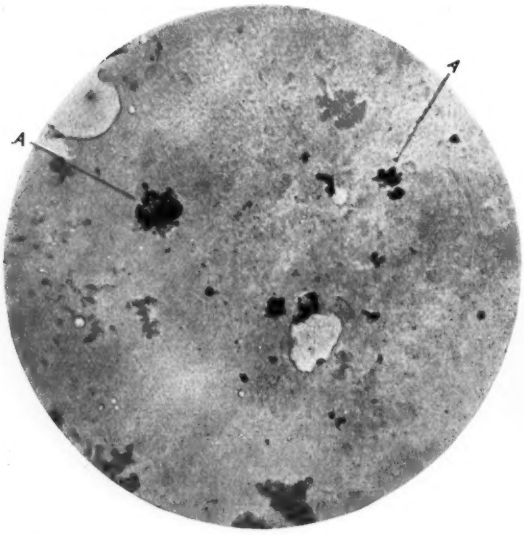

Fig. 9.—Mrs. B. Carmine in contents of Fallopian tube thirty-six hours after insertion into os uteri. A, Carmine particles.

Fig. 10.—Mrs. H. A, A, Carmine on the surface of the pelvic peritoneum after insertion into os uteri. ⅓ obj.

Fig. 11.—A, Indigo from Fallopian tube of guinea-pig after insertion into os uteri.

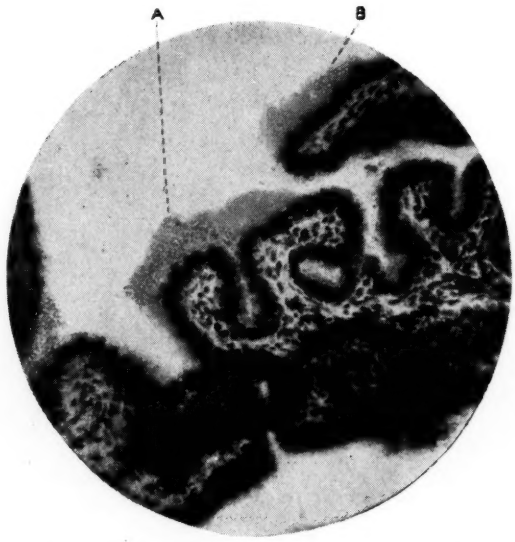

Fig. 12.—Mrs. S. A and B, Blood cells in contents of Fallopian tube, second day of menstruation. ⅓ obj. A.oc.

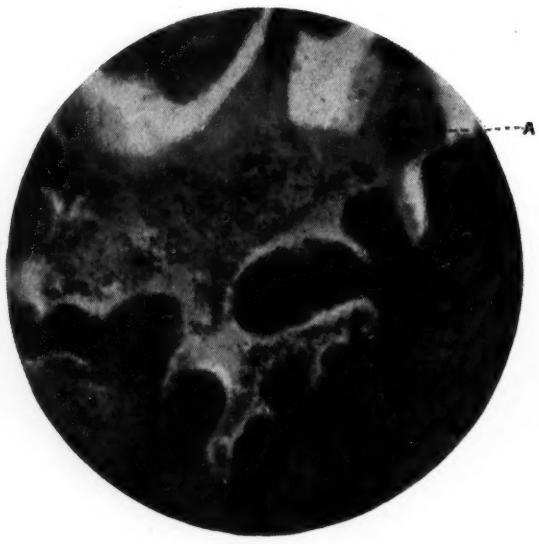

Fig. 13.—Mrs. B. A, Blood and mucous contents of Fallopian tube, third day of menstruation. ⅓ obj.

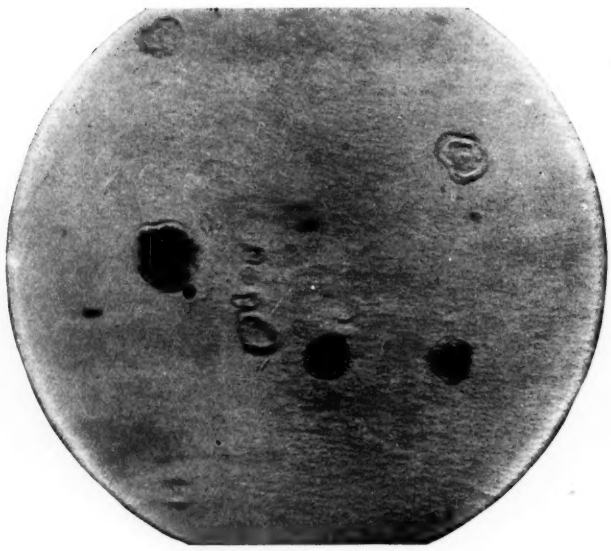

Fig. 15.—Indigo in ducts of mammary gland after rubbing indigo on nipple.

I have already spoken of the influence of a fistulous opening situated at the upper end of the ureter in causing ascending mucous currents in that tube. I have recently come across a striking instance of a like effect in the case of the male urethra. After complete removal of the bladder, including the prostate gland, for malignant disease, with transplantation of the ureters on the loin, a tampon of white sterile gauze was packed down behind the pubes against the face of the cut urethra, a little powdered sterile indigo was inserted just within the external urinary meatus two days after operation; indigo granules in considerable quantity were found in the gauze tampon within thirty-six hours, these granules had travelled along the whole length of the male urethra. This experiment shows the importance of securing asepsis in the contents of mucous canals which communicate with operation areas, and the desirability of preventing the entrance of organisms into the external orifices of these canals.

EPIDIDYMITIS.

The fairly frequent occurrence of epididymitis after instrumentation of the urethra and bladder, and epididymitis the result of gonococcal infection, are more easily explained by the transference of non-motile organisms along the vas deferens than by supposing that they reach the testis by way of the blood stream, for in the latter case it is difficult to understand why the epithelial cells of the epididymis should excrete pathogenic organisms, and those of the body of the testis and of other glands should take no part in the process; moreover, the presence of gonococci in the blood presupposes a generalized infection, whereas epididymitis often occurs as a local manifestation, and without the joint complications and other symptoms which are indicative of a gonococcal septicaemia.

TUBERCULOUS EPIDIDYMITIS.

The same reasoning applies in some degree to tuberculous disease of the testis. The tubercle bacillus affects the epididymis before it affects the body of the testis. Tuberculous epididymitis is usually associated with tuberculous disease in some other part of the genito-urinary tract; the question is whether the tubercle bacillus does not reach the testis by the way of the vas deferens. The improved results shown by Rovsing of Copenhagen[19] to accompany the bringing out of the ureter and the vas deferens on the surface of the body after operations on the tuberculous kidney and tuberculous testis suggest that ascending mucous currents in these canals may account for the invasion of the tissues by the tubercle bacillus in contact with the open ends of these tubes when this precaution is not adopted.*

BACILLURIA AND PYELITIS.

The whole subject of bacilluria in children and adults, both male and female, is interesting from the Immunity as well as from the clinical point of view. Nearly all observers refer to the far greater frequency of pyelitis of bacterial origin in women than in men, and in female than in male children; moreover, it is more common in pregnant than in non-pregnant women, and more common on the right side in children, as well as adults. The influence of pregnancy in determining right-sided pyelitis has been attributed, probably correctly, to the pressure of the enlarging uterus on the right ureter at the brim of the pelvis, but as Dr. Hale White[20] says, this explanation does not hold good in female children and in non-pregnant women. The late Mr. Barnard[21] in this country and Lenhartz[22] abroad were among the first to emphasize the urinary tract as a possible route by which organisms, especially of the *coli* group, gain admittance to the pelvis of the kidney. C. Box,[23] in a lecture at this college, pointed out that *B. coli* cystitis is more common than *B. coli* pyelitis in children, and he drew attention to the clinical importance of incontinence of urine as a symptom in these cases. He also pointed out that the body can dispose of enormous numbers of bacilli when injected into the blood without their appearance in the urine, and when they are so excreted by the kidney the presence of blood, pus, or albumen in the urine is evidence of damage to renal epithelium.

We know that the colon bacillus is often present in the urine in enormous numbers, while evidence of damage to renal cells may be absent; it is, therefore, I think, clear that when organisms are excreted into the urine by the kidney from the blood the small numbers of organisms so excreted will not account for the enormous numbers found in the urine—there must, in fact, be multiplication of organisms in the urine contained in the pelvis of the kidney to account for the increased numbers.

In a paper on the urinary mucous tract and not the blood stream as the route of invasion,[24] I pointed out that even where the symptoms of pyelitis were not preceded by signs of urethritis or vesical catarrh, this fact could not be taken as evidence that the infection had not reached the kidney by way of the urethra and bladder, because we know that organisms can be carried by a mucous current up the uterus and Fallopian tubes to the peritoneum without causing symptoms of inflammation in those canals. I also drew attention to the frequent absence in these pyelitis cases of any evidence of previous blood infection, the local symptoms being the first evidence of any departure from health, and I compared the case of the kidney with that of the liver. When organisms have undergone some degree of attenuation by the blood their excretion by the liver or kidney does not as a rule produce symptoms, but where, owing to heightened virulence, or other causes, they do produce symptoms during excretion, they also bring about damage in the organs (the liver or kidney) which excrete them. Drs. Paton and Tidy[25] have shown that the *Bacillus coli* can be recovered from some samples of blood in patients who are suffering from acute *coli* haemic infection either during or soon after the occurrence of the rigors which accompany this disease. Then we have the observations carried out for Dr. Hale White,[26] showing that twenty samples of urine taken from women suffering from different diseases other than those of the urinary system were sterile, even though many of the patients were severely constipated. Dr. Hale White also records cases of *coli* and pneumococcal arthritis, in which organisms were passing through the kidneys into the urine without any symptoms of renal damage or urinary disease; he also mentioned a case of severe septicaemia from the *Staphylococcus aureus*, in which the same organism was recovered from the urine, while the urine itself was free from any blood, pus, or albumen. Many clinicians must have been led to examine the urine bacteriologically, not because urinary symptoms were present in any case, but in order to discover the organism responsible for the symptoms of blood infection. It is evident, therefore, that there is some other factor concerned in pyelitis besides mode of entry of the organism. In the Address in Surgery I suggested that this other factor was

Urinary Stasis.

The presence of urinary stasis by itself does not enable us to decide in any given case in favour of the ascending as against the descending route of infection, because, although stasis of the contents of the bladder and ureter provide favourable conditions for reversed mucous currents and for the multiplication of the organism in the stagnant urine, urinary stasis also damages the kidney tissues, and may thus bring about impaired excretion or the excretion of active and virulent, instead of dead and attenuated, bacilli, which reach the kidney from the blood stream. There is, however, this difference—temporary arrest of the normal flow in the bladder and ureters provides *at once* the necessary conditions for an ascending infection, whereas urinary stasis, like biliary stasis, must be *prolonged and continuous* before it can damage the kidney or liver sufficiently to prevent these organs from dealing efficiently with moderate doses of pathogenic organisms; thus in cases of even advanced kidney disease pyelitis is often absent unless some infection of the urinary tract also supervenes.

The result of the transplantation of the ureters into the pelvic colon or rectum in cases of ectopia vesicae affords an interesting object lesson of the influence of urinary stasis in bringing about pyelitis by ascending infection. There is no doubt that everything depends on the condition, the patency or otherwise, of the opening of the

* Since this was written an important article on the paths of infection in genito-urinary tuberculosis has appeared by Mr. K. Macfarlane Walker which bears on this subject (*Lancet*, February 15th, 1913).

ureter in the bowel wall. A case of my own reported in the BRITISH MEDICAL JOURNAL of May 19th, 1906,[27] is of interest in this connexion. A youth, aged 16, the subject of ectopia vesicae had both ureters transplanted into the rectum below the peritoneal fold. He lived two years and died eventually from kidney infection. At the necropsy it was found that the opening of the left ureter into the rectum had undergone some cicatricial contraction, the ureteral dilatation and pyelitis were much more marked on this side owing to the urinary stasis. On the right side a freely patent ureteral opening had prevented to a considerable extent the ascending infection (Fig. 14).

The position, then, seems to be that pathogenic organisms reach the urine by way of the blood stream *and* by way of the urinary tract, but local symptoms of urinary infection do not occur unless there be some temporary arrest of the normal flow of urine, and this occurs more quickly in the case of ascending than in descending infections. The real question is as to the relative frequency of these two routes of invasion, and whether it is possible to determine the actual route followed by the organisms in any particular case. It is, of course, obvious that when organisms like the pneumococcus or *Staphylococcus aureus* (which are not likely to cause urethral contamination) are being excreted in the urine in cases of generalized infection the route is probably the blood stream, but when the infection is due to the *Bacillus coli*, then the question of the route of the invasion becomes one of practical importance.

Fig. 14.—Rectum (laid open from behind). Kidneys and transplanted ureters from a case of extroverted bladder. Operation two years before. A, Right kidney healthy. B, Left kidney cystic; strictured opening of ureter. C, Patent opening of ureter.

It will, I think, be found that when organisms are found in the urine which have been excreted by the kidneys they produce symptoms and effects which differ from those produced by organisms which reach the renal pelvis by way of the urinary tract. In the former case urinary symptoms are often absent, and if the kidney is affected, it is affected, in common with other organs, as part of a blood change, of which some other evidence may often be found, or some other primary focus may be detected in some other part of the body; but in the latter case the local urinary symptoms afford the first indications in many cases of any departure from health. The effect of an autogenous vaccine is more marked in relieving symptoms than in removing the organism from the urine in ascending than in descending infections of the urinary tract. It is, for instance, well known that it is much easier to relieve the symptoms in a case of pyelitis of *coli* origin than to remove all the bacilli from the urine. If the *Bacillus coli* persists in the urine in spite of the influence of a vaccine, this must mean that the organism has become adapted to its environment, that it is able to multiply in the renal epithelium or in the urine or the mucus which fills the ureter and the pelvis of the kidney. The fact that the organism is able to grow and multiply outside the tissues of the body itself suggests a mucous rather than a haematogenous origin for the infection. If vaccine treatment rapidly and permanently removes any organism from the urine, this fact affords a presumption, but not a certainty, that some primary focus of infection exists in another mucous membrane, or in some other part of the body, and consequently that the organism is reaching the urine by way of the kidney and the blood stream. The clinical differences in the two cases depend on the fact that in ascending infections the organism is primarily adapted to a urinous environment, while in descending infections it is primarily adapted to a blood stream or a mucous environment of another kind. We do not know fully the extent to which the increased resistance acquired by the blood and tissues as the result of infection are handed over to the secretions, how far, that is to say, the mucus, the urine, or the milk of a patient suffering from typhoid fever contain the bactericidal and immunizing substances specific to that disease.

Dr. Eyre[28] states that the *Bacillus coli* in the urine undergoes changes in fermentation-producing capacity after a patient has been treated by vaccine. The extent of this adaptive capacity may prove to be greater in the case of bacilli which are living and multiplying in the urine than in bacilli which are being excreted by the kidney from the blood.

I have already alluded to the great importance of mucus as a secretion. The rôle played by mucus as a first line of defence against invasion of the body by micro-organisms has not, I think, been sufficiently recognized by pathologists. There are, as far as I am aware, no recorded observations showing to what extent, if any, the mucus secreted by the epithelium of the urinary tract of patients who have undergone a course of autogenous vaccination against *coli* infection is capable of inhibiting the growth of the *Bacillus coli* in various culture media. Neither do we know whether mucus secreted by intestinal epithelium is injurious to the epithelial cells which line the bladder, nor do we know whether salivary mucus (which, as we have seen, is of two kinds in some birds) has any cytolytic action on the epithelium which lines other cavities beside the mouth and gullet.

Before leaving the subject of genital urinary infection, we may draw attention to the fact that veterinary surgeons seem to attach considerable importance to the mucous channels as the chief route of infection in pyelitis in animals. The infectious disease known as pyelonephritis of horses and cattle is more frequent in female than in male animals; moreover the organism can apparently traverse the bladder without causing symptoms of cystitis (Moussu and Dolar).[29]

EPITHELIAL SECRETING ORGANS.

The Mammary Gland.

Infective diseases of the mammary gland are well known in animals and in the human subject. They are for the most part localized and affect one or more lobules of the same gland; this is the case in the infective disease of the udder in cows known as "Garget" and in the abscesses which accompany lactation in women. The probability is that these localized infections of the mammary glands are due to the passage of micro-organisms up the lacteal ducts. If we can show that foreign particles are conveyed from the orifices of the ducts which open on the nipple to the deeper recesses of the gland, a case is made out for the transference of pathogenic organisms along the same route. One such experiment on the cow's udder is of interest in this connexion. Some powdered indigo was inserted into the opening of the main lacteal ducts in the teat of a nulliparous heifer; a microscopical examination of the mammary gland, when the cow was killed a few days later, showed a few indigo granules in two or three acini and in one small lacteal duct. It is quite true that most of the ducts were clear of foreign particles and only a very few indigo granules were present in the whole

gland, but the resting quiescent gland is very different from the lactating gland; the conditions are far more favourable in the lactating gland for the establishment of to-and-fro secretion of mucous currents.

The two common diseases of milking cows—garget and milk fever—are both of interest from our present point of view. Both occur almost entirely in animals in which the udder is physiologically active; milk fever frequently occurs within a day or two of calving. Both are more common in the hot summer months. It is possible that besides infection from the hands of milkmen and dirty litter, flies may take some share in conveying to the orifices of the lacteal ducts the streptococcus which has been shown by Nocard and others to be the cause of contagious mammitis in cows. The first effect of infection of the udder by this organism is to bring about coagulation of the milk in the teats and larger ducts, milk stasis thus occurs, and the conditions arise which favour backward currents and the transference of the organism to the recesses of the gland.

Milk fever, or *post-partum* paralysis, or parturient apoplexy in cows is generally regarded (since Schmidt's work) as due to a toxaemia having its origin in the mammary gland. The fact that the local injection of solution of potassium iodide and air, or of oxygen alone, into the galactophorous ducts frequently produces rapid recovery affords some confirmation of this view, and it is quite possible that this serious disease of the dairy farm may eventually be traced to an infection which reaches the mammary gland through the mucous channels of the lacteal ducts.

In the human subject I have found indigo granules on a plug of white sterile gauze introduced into the cavity of a mammary abscess after the application of indigo to the nipple. In this case a fistula had resulted from the opening of the abscess, and thus a reversed mucous current up the lacteal duct had probably been established (Fig. 15).

The question arises whether reabsorption of milk occurs in the deeper recesses of the mammary gland during the quiescent periods between the flow of milk, and, if reabsorption does occur, whether it occurs through the medium of the epithelial cells or through the lymphatics of the gland. It seems probable that in cases of biliary obstruction the bile is reabsorbed into the blood through the biliary lymphatics and not through the epithelial liver cells.

If reabsorption of normal secretion does occur in glandular organs during the intervals between periods of activity, then such reabsorption taking place in the acini of the gland would act like a fistula and produce reversed currents along the ducts, and that transference of non-motile particles which we know from experiment does occur in cases in which no fistulous communication exists.

Supposing, however, that reabsorption of secretion does not usually or normally occur, there are many abnormal conditions apart from actual disease which bring about arrest of secretory activity in glands. The influence of strong emotion, and many chemical substances, foods, and drugs, will produce this result. The influence of these sudden arrests of secretion in causing stasis and back currents in the mucous canal system of any large secreting organ must have very considerable influence in favouring the entry of micro-organisms, and in bringing about infections which are hard to account for in any other way.

Before leaving the subject of the breast we may notice in passing the widespread habit in the young of many animals to stimulate the mammary secretion in the mother by mechanical means. Lambs and calves violently punch the udder with their noses, kittens knead the mammae with their paws, and infants knead the breast with their hands. No doubt the object of these movements is to stimulate or increase the flow of milk, but in addition to this their physiological effect they may also cause back eddies in the flow of secretion which may have some influence in bringing about infection. The facts about mucous currents and mucous infection which concern the mammary gland apply also to other epithelial secreting organs, such as the pancreas and the salivary glands, and, indeed, to any collection of glandular epithelial cells which communicate with the exterior by means of a mucous duct. It is a significant fact that apart from the specific form of parotitis or mumps, suppurative infections of the parotid seem to occur chiefly in such illnesses as are associated with partial or complete arrest of salivary secretion and with a dry and septic condition of the mouth.

Salivary stasis and the presence of pathogenic organisms in the vicinity of the buccal orifice of Stenson's duct provide the two conditions which favour the upward passage of infecting material along this mucous canal. I have recovered indigo granules from the orifice of a salivary fistula after previously placing some indigo powder in the mouth. It is difficult to understand why the parotid glands should suffer from infection more than the submaxillary if we suppose that the infection reaches the gland by way of the blood stream. If, however, the infection travels up the duct, then the fact that the parotid ducts open high up on the inside of the cheek and the submaxillary ducts low down on the floor of the mouth beneath the tongue may have something to do with the greater liability to infection of the parotid glands, for drying of the mucous membrane in the neighbourhood of the opening of the duct and blocking of secretion is more liable to occur in the former than in the latter. Other interesting questions also arise in the case of mumps. Is the orchitis which sometimes occurs as a sequela the result of a blood infection or is the specific organism excreted by the kidney, and does it reach the testis by way of the vas deferens? The body and not the epididymis is the part of the organ attacked, and this suggests that the infection travels by way of the blood stream, and the same may be true in those rarer cases in which the pancreas shares in the specific infection.

Conclusion.

In bringing to a close these remarks on the mucous channels and the blood stream as alternative routes of invasion, I wish to emphasize the fact that, apart from the importance of obtaining clinical and bacteriological information concerning the path traversed by pathogenic organisms when they infect the tissues of the body, certain problems in immunity are also intimately related to this question of the route of invasion.

I have given reasons for thinking that, when an organism like the *Bacillus coli* reaches the pelvis of the kidney by ascending the urinary tract, it produces symptoms and effects which differ from those produced by the same organism when it reaches the kidney by way of the blood stream. I have also suggested that these differences depend on the fact that the organism is undergoing adaptation to a mucous and urinary environment in the one case and a blood or lymphatic stream environment in the other.

In many ways, therefore, this subject of the route of invasion by disease organisms is one of considerable interest.

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The Arris and Gale Lectures

ON

THE GENITAL FUNCTIONS OF THE DUCTLESS GLANDS IN THE FEMALE.

DELIVERED AT THE ROYAL COLLEGE OF SURGEONS ON MARCH 10TH AND 12TH, 1913,

BY

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[*Abstract.*]

LECTURE I.

INTRODUCTION.

ANY attempt to describe the special correlated functions of the ductless glands, or, to be more exact, of the internal secretions, appears to be avoided by those who have worked most at the subject. Correlations are admitted; points in support of them are produced, and the matter is then dropped. In many ways this is much to be deplored, for, to some extent, it is accountable for the present disordered condition of our knowledge.

I do not wish it to be inferred from these remarks that I am in any way prepared to give in these lectures a complete explanation of the interactions of the ductless glands in regard to the genital functions. It would be impossible in the time at my disposal, even had I the knowledge, which I certainly have not. I do, however, wish to call attention to the fact that the genital functions in the female must be considered from a very wide standpoint in view of our accumulated knowledge concerning them. I shall deal most fully with those parts of the subject on which I have myself worked, and I shall bring forward experimental results to clear up some of the points at issue.

My endeavour will be to emphasize, if I can, the importance of all the internal secretions in the special economy of the female. So that those who are interested in gynaecology may come, if they have not already done so, to look upon all the ductless glands as genital glands—not, of course, exclusively so, nor all in the same way in a metabolic sense, but rather that each is absolutely indispensable to the harmony of the genital functions, which are, therefore, not solely dependent on the functional activity of the special genital gland.

Until recent years attention centred round the ovary, as if it were the only controlling factor in the genital processes. I shall, therefore, first consider the functions of this organ.

THE FUNCTIONS OF THE OVARY.

These are: To provide ova, and to produce an internal secretion or secretions. We need not consider further the liberation of the ova.

The internal secretion of the ovary has never been isolated. Indeed, it is still a matter of considerable dispute as to how and where it is produced. The only evidence that there is an internal secretion rests upon the results of extirpation and destruction experiments, and, to a lesser degree, on clinical observations. The resulting atrophy of the uterus is taken to indicate the loss of some secretion which normally activates this organ.

Some believe that there is more than one secretion, and various authorities have considered that different secretions are produced by the lutein cells of the corpus luteum, by the interstitial cells of the stroma of the ovary and by the membrana granulosa cells; but that they differ in the degree of importance to be ascribed to each.

Prénant, and later Born and Fränkel, were probably the first to call attention to the importance of the lutein cells; and the last named showed that destruction of these cells led to abortion in pregnant rabbits. Hick and I, and many others, invariably produced abortion by the removal of both ovaries in these animals.

It has been supposed that the corpus luteum provides a secretion which assists in maintaining the position of the embedded ovum intact. Experiments on animals seem to support this view; but cases in the human subject are on record in which both ovaries have been removed during the first few weeks of pregnancy for such discrete tumours as fibromata, without interrupting the course of gestation. And herein lies one of the great difficulties in the study of our subject; different orders of mammals have organs of internal secretion which are structurally and even functionally different, although perhaps in degree only. Individuals in the same species may vary, both in animals and in man. Consequently, some of the contradictory statements made by different experimenters may be explained on the ground of these variations.

The interstitial cells of the ovary also are believed to possess a special internal secretion. Limon first compared the ovaries of many species of mammals, and found an enormous difference in the preponderance of interstitial cells in the different ovaries.

Every one is familiar with the structure of the human ovary and the obvious scarcity of secretory cells—apart from those connected with the follicles. But if we examine the ovary of an adult rabbit, or any other rodent, we see a most remarkable structure. The whole organ is composed of a mass of cells which are epithelioid in character. And still more remarkable is the appearance of the corpora lutea, the cells of which can only be distinguished, if at all, from the cells of the stroma by their larger size. The Graafian follicles are crowded round the periphery of the ovary as though pushed outwards.

From very close observation of the corpora lutea in all the stages of development I have come to the conclusion that they do not undergo involution in rodents as in the higher mammals, but that they ultimately form the so-called interstitial stroma cells. Often one can see the cells of the corpus luteum merging into the similar cells in the stroma of the ovary.

If we examine the ovaries of rabbits a few weeks old, we find them composed entirely of primordial ova and a few follicles, separated by bundles of connective tissue. There is an entire absence of interstitial cells. This also indicates the probability of the origin of these cells from corpora lutea, although it is possible that in the human ovary, and in the ovaries of animals which contain very few interstitial cells, these arise from the capsular epithelium, or possibly from special stroma cells. Thirdly, there are the Graafian follicles with their linings of membrana granulosa cells to which some attribute an internal secretion. In favour of this view I shall adduce some evidence later.

The question now arises whether we are justified in assuming that there is only one type of secretory cell in the ovary. If we were to put aside the liquor folliculi as an internal secretion, I do not think we should be wrong in assuming that the interstitial cells and the corpus luteum have the same function, especially if we believe that they are derived from the same source. In experimental investigations of the ovarian functions we have no means of separating the various parts of the ovary, and can, therefore, only estimate the total function.

My own experiments have been carried out on dogs, cats, and rabbits. As already stated, the ovaries of the carnivora resemble in structure the human ovary more closely than is the case with the ovaries of rodents. The methods of investigation have consisted in noting the effects of oöphorectomy on the pregnant and non-pregnant uterus, on the other ductless glands, and on the general metabolism of the body.

Effects of Oöphorectomy on the Genital Functions.

Hick and I pointed out some years ago that the effect of oöphorectomy on the non-pregnant uterus was to produce, first of all, atrophy of the muscular coats.

We concluded that the normal muscular contractions were abolished and atrophy supervened in the manner usual to muscles that are not utilized. This has been confirmed and accepted by Marshall and others. The total ovarian secretion exercises a somewhat remarkable experimental effect on the uterus. Hick and I found that when injected intravenously it caused contractions in the oestrous uterus of the rabbit, but inhibited the

contractions of the pregnant uterus. We were, however, not always been able to produce the latter result.

Recently I have investigated the important question whether the metabolic conditions of the body are materially altered by oöphorectomy, or not.

Effects of Oöphorectomy on the General Metabolism.

In the early part of last year I removed the ovaries of six cats which were kept for periods ranging from 139 to 251 days. The urine was collected and fully examined at frequent intervals both before and after operation.

It was found that the specific gravity was higher after operation than before in half the cases. This, of course, would lead us to expect a larger proportion of solids in the latter period of observation, and this was more or less borne out except in the case of one cat. Since there was some irregularity in the individual results, and we had a sufficient number of animals, an average estimation of all six cases was worked out. From this we drew our conclusions.

The calcium excretion was diminished by one half. The chlorides were slightly diminished. The phosphorus excretion was much increased, as was the total nitrogen and urea percentages. The ammonia was slightly increased. There was no real change in the ammonia coefficient.

Knowing as we do the marked changes in the nitrogen metabolism which normal animals undergo, we cannot look upon the changes recorded in regard to the nitrogen as of much importance.

The increased phosphorus excretion was somewhat curious in view of the definite decrease in the excretion of calcium.

I may, perhaps, be allowed to recapitulate a few other facts which afford evidence contributory to the view that the ovaries are concerned in promoting calcium excretion. During pregnancy and lactation the function of the ovaries is in abeyance in regard to menstruation, and at these times first the fetus and then the breasts utilize all the available calcium—indeed, the mother's tissues are sometimes drawn upon to her detriment.

With regard to the mammary secretion, although it is so intimately connected with the genital functions, I look upon it as of subsidiary importance. That is to say, the secretion of milk is produced by a special arrangement of the general metabolism in response to various hormones connected with the necessities of the occasion. In women there is sometimes no response.

I do not propose to discuss lactation in these lectures, since it is one of the side issues, and the metabolic processes connected with the production of milk are comparable with those which provide for the building up of the fetus in the uterus. It is a process with which all the ductless glands are directly or indirectly concerned.

Osteomalacia, about which I shall have more to say in the next lecture, has often been cured by the removal of the ovaries, and this result indicates a condition of calcium retention in the tissues. My experiments are therefore supported by clinical observations.

We know quite well, of course, that from a casual inspection of animals which have undergone oöphorectomy we can detect no outward change, except some degree of adiposity, yet apparently there is a constant metabolic disturbance in regard to the calcium retention and increased phosphorus excretion as shown by the urinary analyses.

On the other hand, we know well from our clinical experience that outward changes of a marked character my occur in women in whom an artificial menopause has been induced by oöphorectomy. At the same time it has been a matter of very lively speculation why one woman should suffer all manner of evils when her ovaries are removed, and another suffer very little.

And this is another reason why experimentation on animals has to be very carefully considered. The metabolism of women is much more easily disturbed than is that of the lower animals; and psychoses and neuroses which are not observed after oöphorectomy in the latter are often the source of the greatest distress in women.

But we shall see that, in addition to certain constant and positive results which are always reliable in regard to the metabolism, experimentation provides us with other most useful information, and this information is just that which we cannot obtain in our clinical work, although it may be at the bottom of many obscure phenomena. I refer to the effects produced on the other ductless glands by removal of the ovaries. No doubt the differences in the effects of oöphorectomy in women, just alluded to, are largely dependent upon the individual variations that we know exist with regard to the adjustments of the internal secretions, and are evidenced by the outward characteristics of adiposity and thinness, lethargy and brightness, and many other physical and psychical attributes. So that it is clear that if one woman be better adjusted than another against the removal of the ovarian secretion, she will show less signs of the menopause. Animals do not vary in the same way. They all seem to have a remarkable power of readjustment. But with the higher psychical evolution of woman it is not surprising that removal of the ovaries often causes a severe alteration of temperament.

It has been supposed that the changes that occur in other members of the ductless gland system after removal of one of their number are in some cases compensatory, and consequently that disturbances in the body metabolism may thus be made good or prevented.

Effects of Oöphorectomy on the Thyroid.

If one were to select any other order of mammal than the rodent one would come to the conclusion that any alteration in the functional activity of the thyroid after oöphorectomy was of little or no importance in so far as histological evidence was concerned. For instance, in the cat I have been unable to detect any material difference after oöphorectomy in the thyroid itself or in the parathyroid.

But if one compares the thyroid of a normal female rabbit with the thyroid of the same animal after removal of the ovaries, one sees a very different picture. The thyroid of the normal non-oestrous and non-pregnart female rabbit is not a very active organ in so far as the production of colloid is concerned. But after removal of the ovaries there is great distension of the vesicles, which are filled with colloid. Further, the colloid is seen to be basophile in character, staining blue with haematoxylin instead of pink with eosin, whereas the normal thyroid colloid is, of course, acidophile and stains with eosin.

Before attempting any explanation of the changes in the thyroid after oöphorectomy we must not forget that this organ in the pregnant rabbit shows a relatively great increase in the amount of colloid, but that it is then eosinophile in character.

It may safely be asserted that there is a considerable increase in functional activity of the thyroid of rodents after oöphorectomy.

Why the colloid should be basophile instead of eosinophile we can only conjecture. I have carefully considered the question of an artefact, but I think this must be rejected for many reasons, into which I need not enter here. We are, however, assisted in our attempt to arrive at a conclusion by observations made on the pituitary body, some of which will be referred to more fully later.

The normal colloidal secretion of the anterior lobe and pars intermedia of the pituitary is basophile, but under conditions of increased activity it is eosinophile. Further, like the thyroid, in a condition of greater hypophysial activity no colloid is formed, but the secretion is abstracted directly from eosinophile cells. In conditions of the greatest activity of all, as I shall show later, the secretion is directly abstracted by the blood or lymph from faintly staining basophile cells, that is, from the so-called chromophobe cells. There is, in fact, a cycle of events to be demonstrated in the hypophysis according to the needs of the moment.

It is probable, then, that the basophile colloid found in the rabbit's thyroid after oöphorectomy represents a storage secretion, which is formed to meet the altered conditions of metabolism, but which is not of a great degree of activity in this order of mammals.

As I have previously suggested, the inactive thyroid which is found in rodents is probably related to the very marked development of the interstitial cells in the ovaries of these animals; and, as a consequence, a marked reaction is produced in the thyroid of rodents by

oöphorectomy, and not to the same degree in other mammals, such as the carnivora.

Effects of Oöphorectomy on the Thymus.

Calzolari first showed that castration produced hypertrophy of the thymus. His experiments were carried out on rabbits.

No work has been done in regard to women, but eunuchs have been found to possess thymuses which have not undergone involution. It has also been noted by Marrasini and by Gellin that castration, after genital activity has been established, gives rise to enlargement of the thymus.

In my experiments on cats we found the thymus much larger after oöphorectomy than in the normal adult animal, and on section it appeared to resemble the normal gland in the active stage before puberty.

Effects of Oöphorectomy on the Pineal Gland.

I have personally made no observations of the pineal gland after oöphorectomy; indeed, very little physiological work has been done in this connexion.

Biach and Hulles published a paper last year, in which they gave the results of castration of male and female kittens a few weeks old. The animals were kept from seven to eight months. These investigators arrived at the conclusion that atrophy of the pineal gland occurred in all cases. Other observers have been able to find no changes in this organ.

Later on I shall consider the effect of pathological changes in the pineal on the genital functions.

Effects of Oöphorectomy on the Suprarenals.

I have examined many suprarenals after oöphorectomy in rabbits and cats, and have found that there appears to be a definite increase in the reticulated portion of the cortex, at the expense of the zona fasciculata. What the interpretation of this is I cannot say.

Clinical Observations of the Effects produced on the Thyroid by Ovarian Insufficiency in Women.

No experimental finding in regard to the interrelationship of the internal secretions can be considered of real or practical value unless it be supported by clinical evidence.

Indeed, it may be considered that experimental evidence concerning the functions of the ductless glands, which, as I have already pointed out, are subject to individual variations, is most useful in giving us a lead in the interpretation of those difficult cases with which we may be confronted, but are now beginning to understand more fully. This understanding has been brought about by dovetailing our experimental results into our clinical experiences. A brilliant example of what may be accomplished along these lines is afforded by Harvey Cushing's recent work on the pituitary body.

What evidence have we, then, of a clinical nature concerning the correlation of the thyroid and ovary, in the circumstances under discussion—that is, with ovarian insufficiency?

I have many times alluded, as have other writers, to the well-known enlargement of the thyroid in pregnancy. It is probable that normally this enlargement corresponds with that found after oöphorectomy, for in certain respects the ovary is quiescent during pregnancy. We know that this enlargement normally does not produce the signs associated with exophthalmic goitre, but is, as I have already shown, due to excess of colloid material. At the same time I have known more than one case of Graves's disease commence during pregnancy.

It is probable, also, that the enlargement of the thyroid seen in girls during menstruation about puberty is due to the incomplete state of development of the ovaries, and histologically is the same in character as that occurring during pregnancy. I am not aware, however, that such a thyroid has ever been examined microscopically, for obvious reasons.

In addition to this we have other evidence of a pathological nature. No doubt many gynaecologists have had experiences similar to mine.

In one case, Mrs. J., aged 46, I removed both ovaries for cystic adenomata; on histological examination adenocarcinoma was found in a portion of one of the cysts, as is frequently the case when the patient is over 40 years of age. All went well for two months; then the patient developed slight enlargement of the thyroid. The condition passed rapidly into one of acute exophthalmic goitre, from which the patient actually died within a year of the operation.

I have recently seen a most remarkable case which I believe to be unique.

G. R., aged 25, was referred to me by one of my medical colleagues at the Liverpool Royal Infirmary. She had been married for three years, and had had one child eleven months before she came under observation. The delivery was difficult and was effected with forceps. She was able to nurse the baby for a few weeks only, owing to deficient secretion of milk.

The patient presented herself with typical symptoms of early exophthalmic goitre, and her pulse-rate was 150 per minute. She had never menstruated since her confinement, but had always been regular before she became pregnant—three to four days per mensem.

I found she had the somewhat rare condition of superinvolution of the uterus. The length of the uterine cavity measured under 2 in. The left ovary was palpable and apparently not atrophied.

Now, the pathology of superinvolution is not completely understood, but I think that there must sometimes be an insufficiency of ovarian secretion, even if it be not possible to recognize histological changes in the ovary by our present methods of investigation. At the same time, as we shall see later, insufficiency of other ductless glands may lead to the same condition.

In view of the facts recorded, I think it is amply proved that ovarian insufficiency leads to changes in the thyroid, which may either be of the type seen after experimental oöphorectomy—namely, colloid accumulation—or, more rarely, that represented by exophthalmic goitre.

Until we know a little more of the relation of colloid secretion to the excessive secretion without colloid formation that occurs in exophthalmic goitre, we cannot go into details concerning the exact pathological reactions that occur in the general metabolism. My own view is that it is the regulation of the calcium metabolism that is concerned in these changes. We have seen that oöphorectomy diminishes the output; and we know that the excretion is much increased in Graves's disease, so that this condition may represent a counter-effect to ovarian insufficiency. This at least seems obvious, although I am fully aware that the changes in the thyroid may be merely the gross representation of a number of most intricate changes connected with growth, reproduction, and the life of the individual in which all the ductless glands are concerned.

Effects of Oöphorectomy on the Pituitary Body.

The close relationship between the pituitary body and the genital system has long been recognized, and I have made a number of observations of the effect of oöphorectomy on this intracranial organ.

The interpretation of these observations necessitates the formulation of definite ideas as to what the changes observed may mean. We read of "hyperplasia" or of "increased activity" of the anterior lobe, which can convey little meaning to any one until we have decided what are the appearances associated with increased activity and the reverse in the pituitary body. So far as I know, tentative views only have been put forward, and no very decided statements have been given concerning this complex and interesting organ.

As every one knows, the pituitary consists of three parts: the pars anterior, the pars intermedia, and the pars nervosa.

To each of these various portions, or perhaps more especially to the pars anterior and to the pars posterior—which consists of the pars intermedia and pars nervosa—have been assigned different functions. Authorities are still very much in disagreement concerning them.

Thus we find that Harvey Cushing arrived at the definite conclusion, as the result of his experiments, that the anterior portion was largely concerned in the well-being of the genital organs and in the metabolism of the carbohydrates and of the bony skeleton. As the result of some, if I may say so, rather insufficient clinical observations, he completely changed his opinion, and now asserts that it is the posterior lobe which is responsible for the integrity of the genitalia, and for carbohydrate metabolism. Bernhard Fischer had previously propounded this view.

After careful consideration and observation I have come to the conclusion that we must look upon the pituitary body as *one organ*, and not two. In this way only can we

reconcile all the facts of experimentation and clinical observation.

The secretion of the active chromophobe cells of the anterior lobe, such as are seen in pregnancy, is probably not different from that of the pars intermedia. And I believe that the secretion of the cells of the pars intermedia, which are developmentally the same as those of the pars anterior, may be regarded as pro-infundibulin, and that when it passes into the pars nervosa it becomes modified and acquires pressor qualities. In connexion with this passage of secretion into the pars nervosa there are many very important and interesting facts which are not actually concerned with our subject, so I refrain from discussing them here.

Next we must come to some definite conclusion concerning the interpretation to be placed upon the remarkable differences in staining properties possessed by the cells of the anterior lobe.

Although these variations in staining affinities are well known, I must recapitulate them in order to explain my views concerning their meaning. The cells, then, of the anterior portion are chromophobe or chromophile—they stain indifferently or well. The chromophile cells are either eosinophile (acidophile) or haematoxylinophile (basophile). With eosin they stain red, and with haematoxylin blue. The chromophobe cells stain lightly with haematoxylin.

There are two opinions held concerning this extraordinary grouping. The one, first put forward by Saint Rémy and Benda, finds expression in the belief that these appearances represent different phases of secretory activity. While the other opinion, propounded by Gemelli, represents the idea that each type of cell has a special secretion. My own view coincides with the first suggestion, and after careful investigation I have come to the following conclusions regarding the cycle of events.

First, the eosinophile cells represent the actively secreting cells, which ordinarily discharge their secretion into the blood vessels or lymphatics. If there be no great demand for the secretion the cells may become basophile and enlarge. They gradually become darker until finally they discharge basophile colloid among the neighbouring cells, which may form a vesicle-like wall around it.

After the discharge of colloid we see the small shrunken chromophobe cells all with large nuclei in which a network of chromatin fibres can be seen.

In certain circumstances, as in pregnancy or after removal of the thyroid, there is a great and immediate demand for secretion. Under these conditions the small chromophobe cells regenerate into large chromophobe cells, and eosinophilia—a more leisurely process—does not occur to the usual extent. These chromophobe cells have been called "pregnancy cells," owing to their constant appearance in the pars anterior during pregnancy.

Finally, it must be mentioned that the pars intermedia secretes colloid—normally basophile in reaction, but in some circumstances, to be mentioned directly, eosinophile. The colloid, which is formed in the pars anterior and pars intermedia, is probably a storage secretion, like the colloid seen in the thyroid.

The more active method of secretion in both parts of the pituitary is intracellular. In the pars intermedia the cells swell up and become fused, and the secretion is, I believe, taken up straight away by the blood or lymph. Some of the secretion of the pars intermedia, and even the actual cells, pass directly into the pars nervosa, whence absorption occurs; and it is in the pars nervosa, in my opinion, that the pressor qualities of infundibulin are acquired.

To return from this digression. Removal of the ovaries appears to exert a certain influence over the secretory functions of the pituitary body on the lines indicated. But in my experience the change is moderate and not quite constant. Thus, in one experiment—Cat No. 6 of my ovarian removal series—after an interval of 210 days, there was no divergence from the normal to be recognized histologically.

I believe the effect is more or less temporary, and in no way comparable to the genital lesions seen after partial extirpation of the pituitary. In most of my cats, however, definite changes were found as long as 245 days after oöphorectomy. There was a large preponderance of eosinophile cells in the anterior portion. This shows activity, but not the great activity seen after thyroidectomy. In the pars intermedia the cells are fused, and there are colloid vesicles, and sometimes colloid cysts. This colloid stains with eosin, in contradistinction to the normal condition of basophilia.

It is interesting to note that the changes which occur in the pituitary with ovarian insufficiency are not comparable with those found in pregnancy; so that the relation of the pituitary body to the genital glands differs in this respect at least from the ovarian-thyroid relationship in similar circumstances.

Fichera, however, believes that the "hyperplasia and hypertrophy" that follows oöphorectomy resembles that seen in pregnancy. Accordingly he believes that the change in the anterior lobe in pregnancy is due to ovarian insufficiency. As already stated, I have seen nothing to lead me to adopt this view.

Clinical Observations of the Effects produced on the Pituitary by Ovarian Insufficiency in Women.

There is extremely little evidence of any absolute value in regard to this, partly owing to the inaccessible position of the pituitary body and partly owing to the few attempts that have been made to investigate any possible changes present.

As we have seen, there is a peculiar and active state produced in the pars anterior and pars intermedia in pregnancy, but our evidence does not lead us to suppose that this is due to ovarian insufficiency. It is probably concerned with the fetal metabolism, for, unlike thyroid enlargement, it appears to become more pronounced late in pregnancy.

The hemianopia that is sometimes seen during gestation has been attributed to the pressure produced by the enlargement of the pars anterior. And, in the increased secretion of this portion of the pituitary some have sought to find an explanation of the enlargement of the hands and lower part of the face, also sometimes noticed during the period of pregnancy. But there is no evidence I know of that goes to show that the enlargement is skeletal. Indeed it is usually merely a temporary thickening of the soft tissues, such as may be seen after oöphorectomy.

Again, because atrophy of the genital organs is associated with lesions of the pituitary, especially in the condition known as dystrophia adiposo-genitalis (Fröhlich), some authorities (Tandler, Gross, and others) have endeavoured to attribute the primary cause of the pituitary affection to the atrophy of the genital glands. But this is hardly to be believed on the present evidence at our disposal, and it is much more likely that the genital atrophy is subsequent to the pituitary lesion.

The facts I have brought forward in this lecture illustrate the influence of the ovaries on the uterus, on the general metabolism, and on the rest of the principal organs of internal secretion.

With regard to the influence of the ovary on the uterus, we have seen that to some extent the implantation of the fertilized ovum is assisted, possibly by the secretion of the corpus luteum. Further, the activity of the uterus is maintained and regular contractions promoted, probably by the secretion of the interstitial cells.

In the general metabolism the total ovarian secretion appears to promote the excretion of calcium and the retention of phosphorus. And lastly, total ovarian insufficiency arouses increased activity in all the remaining ductless glands.

THE third biennial congress of the Far Eastern Association of Tropical Medicine will be held in Saigon from November 8th to 15th next, under the presidency of Dr. Clarac, inspector of the sanitary and medical services of Indo-China. Papers offered will be classified for reading by a scientific committee, and it is hoped to receive contributions on protozoology and helminthology, on cholera, plague, leprosy and tuberculosis, on malarial and other tropical fevers, on beri-beri and dysentery, on obstetrical surgery and infantile diseases, and on climate and sanitation. Dr. M. L. R. Montel, medical officer to the Saigon municipality, is acting as secretary to the congress; the official language will be English, but papers may be read also in French or German. The subscription is 10s. 6d. (6 dollars, Saigon currency).

THE AESTHETICS OF MEDICINE.*

BY

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IT is curious to note how short-lived the memory of some evil things may be. When we suffer bereavement, time softens our sorrows and we come to look back with equanimity upon the anguish which we suffered at the time of disease or disaster and death, and only the happy memories associated with life remain. In the case of nations which have been at war the tragedies and calamities and anxieties incidental to the period of hostility after a time become mere matters of talk. The sense of reality which surrounded them at the time of their occurrence is lost and they are looked back upon without emotion. As in the case of all friendships which have been seriously broken and patched up again, scars of mistrust and of enmity remain on either side, and it is doubtful whether they can be effaced, at all events in the lifetime of a generation. Fortunately, however, these scars are not necessarily transmitted to the descendants of the previously hostile races; just as the children of disfigured parents are born without blemish, the old animosities become smoothed away and, an *entente cordiale* being established, nations which were formerly enemies may become fast friends. It is common knowledge that the lessons of a war are soon forgotten, all the enthusiasm which existed at the time of the war about having territorial regiments up to strength disappears, and instead of having to reject men because there is no room for them—the young manhood of the country lapses into its old condition of indifference and carelessness, and all kinds of schemes and projects have to be formulated and employed to encourage recruiting and to impress the necessity for training and readiness in case of emergency. Just as in the case of a war, the memory of a scourge which, passing over a country, kills thousands of people, soon goes; a decade passes, and the remembrances of the sore experiences become softened, and people having resumed their normal cheerfulness and optimism, think, if they do not say, "Sufficient unto the day is the evil thereof." A generation passes, and the new one regards the story of woe as a matter of historic interest, worrying no doubt to their ancestors, but why trouble about a set of people whom they only knew by hearsay, or about a disease which is little likely to become epidemic again in view of all the precautions which the health authorities undertake to keep it in check? A nation's gratitude is often periodically revived by the celebration of the anniversaries of great historic battles and military events—for instance, by the keeping of Trafalgar days and Ladysmith days, and by the decoration of the statues of heroes and of regimental memorials, but I wonder how many people ever dream of what they owe to medicine, to the great generals who have come out victorious in the battles against disease and against the scourges to which I have referred. We never hear of any national or international rejoicings to celebrate the victories of men like Jenner and Lister, or of the numerous lesser lights, who have done more for this country and for humanity in general, and have covered themselves with more glory and honour than could have been attained by the carrying out of any great military operations. The one type of glory is always associated with destruction of life and health and with misery, privation, and international jealousy; the other is inseparable from what is universally benign and from factors which have to do with the salvation of life and health, and they are also inseparable from those bearing upon the subject which more immediately interests me at the moment, namely, the preservation of physical good looks and beauty. Just as disease has a destroying effect upon beauty, so medicine has exerted its influences in the way of its preservation. Deformity, using the word in its broadest sense, is almost invariably the result of disease, and when a person is deformed, whether in mind, feature, body or limb, his or her chances in life are lessened, sometimes on grounds of diminished physical utility, but not infrequently simply because beauty is an important asset, the admiration and appreciation of the beautiful being an inborn attribute of humanity. Medicine has done a great deal in the past to preserve good looks. Nowadays, for instance, we regard with some curiosity the face of a man or woman which is pitted by small-pox, and we truthfully ascribe it to some careless or foolish neglect of vaccination. Some of us, however, remember the time when a large proportion of the older people whom we knew in the days of our childhood were more or less scarred by that disease—those who were children in the early vaccination or prevaccination days, and who had run the gauntlet of the small-pox in their childhood. Everybody had to run the risk of it then, just as the children of to-day almost invariably get measles. After the Vaccination Acts small-pox became rare among children, and the scarred faces were mainly seen among the adults who had had it in the prevaccination days. That generation having passed away, their protected children grew up and took their places with unblemished faces, and we, the great-grandchildren of that scarred and pitted ancestry, are hardly able to realize the state of affairs which existed in the former days. The whole human world owes much of its retained facial beauty to Jenner, and we little appreciate to-day the number of people whose features have been saved and their good looks preserved through vaccination.

Disease has always taken an important place in history, fiction, philosophy, and poetry, and it is not surprising that the small-pox which raged periodically in the country should have figured largely in these branches. It was a factor which entered into everybody's calculations, because it spared no class of society, and was an important cause of death as well as of deformity. It was sometimes spoken of as a murderous disease. You will recollect that Mary, the wife of William of Orange, succumbed to it, and its importance on account of its fatality may be estimated by the fact that in comparatively recent times nobody would have been accepted for life insurance who had not either had the small-pox or been vaccinated, and to-day every insurance inquiry form requires information on this point.

We have an example of its introduction into fiction in Esther's narrative in *Bleak House*, where Dickens so graphically describes Esther's recovery from small-pox—her gradual restoration to health and the returning sight and strength; then the pathetic recognition that the room had been changed; the looking-glass gone; how Charley, when Esther asked about it, "making as if she had forgotten something, went into the next room and was heard to sob there." Then the bravery of Esther when she realized that her beauty had gone for ever, and that the course of her life was thereby possibly changed for ever.

This change from beauty has been the almost invariable theme of the novelist and of the philosopher in connexion with small-pox; the latter, at all events, has made it the circumstance whereby some finer qualities of mind were eventually developed or brought out. This is exemplified in the "Consolation Offered to a Beauty Destroyed by the Small-pox," written by Steele in the *Spectator* dated Wednesday, February 20th, 1711—just over two hundred years ago. Parthenissa has written a letter in which she says "This face which (according to many epistles which I have by me) was the seat of all that was beautiful in woman, is now disfigured with scars." Steele first of all reproves her for having thought so much of her beauty, and then proceeds to comfort her by saying that beauties generally speaking are the most impertinent and disagreeable of women. He says:

> Ask any of the husbands of great beauties, and they will tell you that they hate their wives nine hours out of every day they pass together. . . . They pray at public devotions as they are beauties—they converse on ordinary occasions as they are beauties. Ask Belinda what it is o'clock, and she is at a stand whether so great a beauty should answer you. In a word, I think, instead of offering to administer consolation to Parthenissa, I should congratulate her on her metamorphosis; and, however she may think she was not the least insolent in the prosperity of her charms, she was enough so to find she may make herself a much more agreeable person in her present adversity. . . . Good nature will always supply the absence of beauty, but beauty cannot long supply the absence of good nature.

Steele's consolation was very well in its way for one

* Read at the Liverpool Medical Institution, May 2nd, 1912.

who, having possessed beauty, had lost it, but I am sure that all will agree that beauty and insolence are not so inseparable, and that good qualities are sufficiently often associated with goodly appearances to make their retention well worth while. I doubt very much whether loss of beauty would always have the effect of removing or abating disagreeable points in character; indeed, it is probable that it might sour the temper. It is proverbial, for instance, that the hunchback tends to be an ill-tempered and disagreeable type of person.

So much for the small-pox. Let us be thankful that it no longer disfigures us as a nation, and let us pray and hope that no foolhardy measures will ever make it optional whether our children be protected from it or not. There is no greater danger to the people than the anti-vaccination agitator, for we owe it to our children that their good looks as well as their lives be preserved, even if the law insists upon it.

Apart altogether from epidemic diseases such as the one just referred to, there are a large number of other conditions which affect the child and lead to lasting structural defects of one kind or another. These, if they do not give rise to actual physical deformity, occasion more or less chronic ill health which, in itself, detracts from what would have been normal physical and mental character. Beauty is a corollary of health, and health is the expression of physiological perfection and fitness. During the past thirty years public opinion has undergone a most extraordinary change with reference to the importance which is to be attached to the proper care of the child. The time was when the young and inexperienced doctor was thought to be good enough to look after the children of a household, and they were also sent to less expensive dentists than those employed for the grown-ups. By degrees it has become realized that many of the chronic troubles of men and women—indeed, one may say a great deal of their lack of capacity for undertaking the duties of life—have resulted from ignorance concerning the care which might have been accorded to them during their childhood. It was an appreciation of this fact among others which led to the establishment of the Royal Liverpool Country Hospital for Children, which has done and is doing so much to grapple with those troubles which give rise to permanent crippling and ill health, and the same principle has, no doubt, led to the establishment of all of those school clinics and medical inspections which are becoming an essential part of the administration of every child's life. Every one will agree that a person who is normally good looking, whether child or adult, loses his or her attractiveness when the normal curves and lines of beauty are disturbed by disease. I shall presently refer to some of the ways in which nutritional disturbances and the misuse or disuse of physiological function give rise to changes which detract from beauty; but, in addition to these, there are a large number of ailments more especially affecting children which not only immediately influence their appearances but give rise to lasting defects and deformities. Apart altogether from its aesthetic aspects, there are in this connexion few questions in social economics which are more worthy of attention than the care and treatment of the child. If taken early enough, its disease may be arrested before much damage has been effected; and, on the other hand, even if organic changes have taken place, by suitable treatment crippling and deformity may be minimized, and the less the amount of crippling the greater will be the wage-earning capacity of the future man or woman, and the less will he or she be likely to drift into the workhouse, or to become indigent and dependent upon charity. On this account, if for no other reason, the subject is important. At the moment, however, I cannot deal with this aspect of the question, my purpose being simply to speak of the influences which have to do with the preservation of beauty.

Civilization is a factor which is no doubt responsible for some of the defects and deformities to which I shall presently refer. In the lower animals instinct forms a guide which leads them to functionate naturally, but in our case instinct has been lost, and our methods of bringing up the child are so artificial that structural changes take place simply from want of proper regard for the carrying out of physiological principles. Nature, while resenting overwork, requires, nevertheless, the exercise of function for the maintenance of physiological soundness, and habitual desuetude engenders atrophy, and atrophy may in its turn lead to loss of vitality and consequent disease.

For many years I have been interested in the condition of the teeth of children, and there is no part of the body to which the above statements are more apposite, and since the teeth are so essential to goodly appearance and to the well-being of the individual, I propose to say a few words concerning them.

When visiting the museum of the Royal College of Surgeons in London a year ago, I was privileged to attend a demonstration by Professor Keith, who, among other things, showed us the celebrated Gibraltar skull, which is said to be 500,000 years old. One of the points which struck me concerning it was the regularity of the teeth and the straightness with which they were set up in the jaws. This is a characteristic which is noticeable in most of the skulls of primitive people whether they be those of children or of adults, and if we examine the teeth of the uncivilized races of to-day, those who live on more or less primitive lines, we find that the same principle holds good—namely, that they have good and regular teeth just as in the case of the lower animals whose teeth so comparatively seldom depart from the normal. They are squarely set in the jaws, the molars meeting crown to crown and articulating well when the jaws are closed. How does this compare with what we find in our modern civilization? Why, in nearly every child which has completed its second dentition we find that the molars, and especially the lower ones, have tumbled in towards the middle line, so that when the jaws are closed the outer edges of the crowns alone come in contact and the grinding surfaces never come near each other. It is not uncommon to find this deformity so excessive that the crowns of the upper teeth actually overlap and articulate with the outer surfaces of the lower ones, in which event decay is nearly always very marked.

I will guarantee that nine out of every ten children whom we examine present this deformity to a greater or less extent, and in many cases the incisors are similarly affected. Professor Keith has been kind enough to confirm what I have said as to the regularity and straightness of the teeth in the Gibraltar skull, and he has also informed me that this "edge to edge" or "overlapping bite . . . only became common some centuries after the arrival of the Anglo-Saxons." Associated with this deformity in the teeth is a loss of vitality in them and the consequent infective necrosis which so often begins in the six-year-old molar and then spreads to other teeth. When a person has a beautiful set of teeth free from decay, you will nearly always find that they are squarely set and with regularly opposing crowns. In old people who have retained their teeth this characteristic is almost invariably present; for instance, in an old lady of my acquaintance aged 94 who has never lost a tooth in her life, every upper molar articulates perfectly with its opposing fellow, and the axes of the teeth are quite perpendicular. Now, what is the meaning of this deformity? It is not due to rickets—of this I am satisfied because I have so often seen it in children who have never had a sign of that disease. It does not generally occur in the milk teeth, which are often quite good and regular as compared with the permanent ones which succeed them, and it would, therefore, seem to have something to do with the permanent ones or with the alveolar structures in which they grow during their period of development. Desuetude, atrophy, deformity, decay; that is the order of events, and why does it occur so commonly in the civilized child? Simply, I believe, because we do not give its grinders anything to do. Endless trouble is taken to educate mothers and those having the care of infants as to how babies should be fed. Our corporations introduce milk dispensaries, and there are other private philanthropies which take pains to teach mothers all about the feeding of their infants in such a way as not to violate physiological principles, and during the period of infancy, if these instructions are carried out, we get corresponding health, peace, and quietness. Then comes the period of early childhood, and we straightway forget that there are principles equally important to be observed then. A perverted instinct leads us in our mistaken kindness to forget the necessity for the exercise of physiological function, and we provide the child with every description

of softened starch, ground-up oatmeal, and other easily swallowed products (many of them even patented as being easily taken by a child) which go down with a gulp. We are under the impression, perhaps, that they are rendered more digestible by the softening process; the teeth are saved all trouble, no mastication is required of them, and correspondingly little salivation takes place, which incidentally accounts in a measure for the common amyloid dyspepsias of children. What wonder is there that the jaws atrophy and that the coming and developing teeth, which are no doubt influenced by the treatment accorded to their predecessors, as well as that to which they are themselves subjected, atrophy from desuetude, topple over, and become easy victims to caries? Thus it will be observed that I associate this dental deformity and subsequent decay, and the starch indigestions, too, which are so common during childhood, with lack of function, and would advocate for its prevention the use of starchy foods which require to be thoroughly chewed and masticated if we are to preserve the teeth in a condition of beauty and soundness. These observations are not based upon mere theoretical grounds, but upon lessons learnt in connexion with inspections of industrial and reformatory schools which I have carried out from time to time. It is a notable circumstance that on the school ships, where the boys are fed upon the traditional ship's biscuits, this type of deformity is not nearly so prevalent as it is among children of the shore schools who are fed on soft starches. For many years, at one of the latter institutions, by my advice, the boys have had these biscuits added to their rations, and there is not the slightest doubt that both the tooth troubles and the dyspepsias have diminished; and, furthermore, there seems to be some evidence that dental deformities which had already taken place have to some extent become corrected since the harder food has been given. I am quite enthusiastic as to this (in my opinion) essential factor in the feeding of children, if we are to preserve their teeth and their digestions.

This desuetude is not the only predisposing factor which has to do with the destruction of dental beauty, but it is one with which we are capable of dealing; and if people would only observe the necessity for exercising this common physiological function of the teeth, I feel convinced that not only the present health of the child would be preserved, but that many of those later troubles which are now known to result from dental caries, especially with reference to the digestive functions, might be prevented or mitigated.

Any nutritive disturbances in early childhood will interfere with the regular formation of the teeth, and will cause them to have a deficiency of enamel with thinning of the dentine. The bases of the teeth near to the gums may in such a case be thick and covered with enamel, whereas their bodies are thinned, discoloured, and deeply striated in a longitudinal direction with thickened transverse ridges, giving a very unwholesome and anything but beautiful appearance, more especially to the incisors. This type of trouble is often seen in cases of backward development or where there are congenital arrests of development, such as congenital heart disease, but they may also result from any prolonged illness, and even acute diseases such as pneumonia cause minor dental deformities. It is difficult to deal with this kind of trouble, but the possibility of an interference with the beauty of the teeth should act as an incentive to all parties concerned to shorten the course of chronic disease in early childhood with a view to the preservation of future good looks.

Endless trouble is taken by parents to avoid facial blemishes in their children, and medical men will adopt every measure to avoid operations on the face and neck which may leave ugly scars and marks; but we seldom regard constitutional disease in the young child from an aesthetic point of view, or think about the effects it may have upon its appearance in later life. In a disease like rickets, which causes immediate bony deformities of the limbs, the matter may be considered, but I doubt whether the remote effects are greatly thought about. Just think of the damage done to the features by this disease; how it deforms the brow and beaks the jaws, causing lasting changes in these visible parts, not to speak of the stunting of growth and other nutritional disturbances in the bones and muscles which it occasions. The lesson to be derived from all of these troubles is that not nearly enough attention is directed towards the education of mothers as to how their children should be fed and dealt with after as well as during the period of infancy. A war should be waged against rickets and against all the faults in hygiene to which I have referred, not only on account of their immediate effects, but also because they are destroyers of the beauty of our childhood and of that of the after manhood and womanhood.

While thus advocating a careful education concerning diet and hygiene with reference to their importance in maintaining normal structure, it is just a question whether in some respects we do not overdo the hunting out of congenital defects some of which might with advantage be left alone if we regard them from an aesthetic point of view. I was present at a meeting last winter at which a large number of girls from 8 to 17 years of age were present and took part in some drill and other kindred displays. I could not help wondering whether all of the large proportion of them which wore spectacles really required them. I confess that I dislike to see children in spectacles and would personally prefer that they should tolerate some of the minor degrees of ocular defect, providing they cause no inconvenience, rather than have their faces disfigured with glasses, and it is not only the face but the whole attitude of the child which becomes altered by them. It walks differently and it runs differently when it wears these correctors of visual defect. I imagine that some of the deformities of the eye may be something like those of the feet insomuch that every case may not need active attention. I regard with remorse the number of useful men and boys who are kept out of the services on account of flat feet, for instance, which is in many cases static and harmless, but which through being a technical flaw disqualifies the candidates. My experience of Volunteer and Territorial work has taught me this lesson, for one knows of plenty of men whose feet were flat as flat could be who have done long and trying marches without experiencing any inconvenience. So, with the eye, there are surely physiological or anatomical defects which cause little trouble and are compensated for by nature. I would go so far as to say that there are certain types of short-sightedness which rather add to the attractiveness of a girl, and if they cause no practical inconvenience or nervous disturbances, why interfere with them, and by mounting her in spectacles constitute a life-long disfigurement? On this account, I do hope that the enthusiasm of the school medical officers will not lead them to attempt to deal with every case which does not come up to a standard of visual perfection.

During a meeting of the workers of the Invalid Children's Association in Liverpool a number of the members visited the Royal Liverpool Country Hospital for Children at Heswall, an institution in which the patients are treated entirely in the open air. A lady whom I was taking round the wards exclaimed, "What handsome children you have in this part of the world!" and these children, although they are all of them suffering from diseases of one kind or another, certainly do look handsome, but this is not because they are more beautiful than other children; it is simply due to the fact that they are living in conditions which tend to bring out their good looks. The beauty of the child depends, like many other things appertaining to it, upon its environment. It fades when in unwholesome surroundings, where worry, improper feeding, unrest, and uncleanliness influence it on the one hand, and the unrefining influences of clamour, filth and degrading language, drunkenness and vice, exist on the other hand. I do not say that these conditions prevail in every case, but every sick child which is in poor circumstances is in an environment of unrest, using that term in a broad sense, which tells upon its nutrition and upon its nervous system, and the secret of the good looks of the children to which this lady referred is the fact that in the hospital these conditions of unrest are absent, and that the nutritional conditions are at their highest; the sunlight and the constant fresh air stimulate metabolism, with the result that they put on weight in an extraordinary way, the normal curves of beauty take the place of pinched and hard lines and of the bony prominences and angles which exist in any condition of wasting; the proportions which the various parts of the body normally bear to one another, so essential to grace

and perfection of conformity, become restored, with the result that many a child which appears to be plain when it comes to the hospital becomes positively good-looking in a very short time. Any painful disease or any condition of chronic disease alters the features perhaps permanently, and so do any conditions which cause irritability of temper, in itself a common enough symptom of disease, and the handsomeness of the children which was noted simply depended upon the fact that with improved health comes grace of posture and of action and of movement; beauty of expression and of colour; brightness of the eyes and alertness of mind—all characteristics of a well-conditioned and attractive child.

As I have already said, beauty is a corollary of health, and the restoration to health with the minimum amount of crippling or deformity—whether it be of lung, heart, abdominal organ, or of the limbs—involves an economy not only respecting the future wage-earning capacity of the individual, but it also enhances his chances of obtaining, as well as of retaining work. On this account, the early recognition and treatment of disease means not only a great advantage to the patients insomuch that they recover with less detriment to their appearances and capabilities, but also to the public, who provide the funds for maintaining the hospitals, and to the associations and institutions which undertake the care of invalid children, because, by getting the cases early the periods of treatment can often be shortened and the amount of expense in any given case is consequently lessened; last, but not least, it is an advantage to the taxpayer, who will certainly have to look after the child when it grows up if it is badly damaged. When the advanced cases present themselves, of course we have to look after them just as carefully, but they take longer to mend and the amount of deformity and of crippling which they sustain is likely to be correspondingly marked. Never, therefore, should we pass lightly over the case of a child which is showing early signs of invalidism, or because it does not appear to be seriously ill. If we could only get hold of these cases early and train such organizations as the Invalid Children's Associations to recognize them, and by bringing them under suitable treatment prevent the advance of their disorders, we might save an immense amount of suffering and of anxiety and of money, too, not to speak of the preservation of goodly appearance, which is such a valuable asset to the individual mainly concerned.

Much experience has now been gained by the treatment of diseased children in open-air wards, and there is not the slightest doubt that the processes of repair are greatly aided by the therapeutic influence of fresh air which is one of the most powerful allies of the doctor. It is remarkable that, like the processes of repair, those of growth are correspondingly stimulated by it. The cellular environment (which I have referred to in another paper) is improved, with the result that children who have been backward brighten up, and their mental activities improve *pari passu* with the restoration of their bodies. This fact indicates that it is not only the diseased child who should have this kind of treatment in the open air. There are thousands of children whose cellular environment is indifferent. The vitality of their cells is consequently lowered, and they are on the verge of disease. Advantage should be taken of these open-air methods of raising the cellular vitality and resistance for all of these. Every school should be a sanatorium, or, using the word in its proper sense, a preventorium, and with proper appliances such open-air class-rooms could be used both summer and winter with great advantage to the children both physically and mentally. At one of the industrial schools in Liverpool this system has, by my desire, been experimented with, and the teachers themselves have become convinced of the benefits which accrue from taking the children out of the closed schoolroom.

Do not let us regard the actually diseased child as the only one who is to reap the benefit of this beneficent measure. Liverpool has pioneered the method of treating diseased children in the splendid open-air hospital at Heswall, and it is earnestly to be hoped that other towns will follow her example, and that the principle of giving healthy children, and especially the indifferently healthy ones, the advantages of open-air education will become generally accepted. The results will manifest themselves not only in the improvement and maintenance of their healths and sharpening of their wits, but it will also be found that the spread of tuberculosis and of infectious diseases will be minimized, so that as a preventive measure it is to be recommended, if for no other reason.

The idea of open-air schools comes in very timely association with the improved sanitary conditions which have been carried out by our health authorities with reference to insanitary dwellings, and in connexion with it should come a vigorous educational campaign having for its object the teaching of the people that open air is as necessary for the child at home as it is elsewhere. The child is the most valuable possession of the nation. Much money is expended upon it, which is wasted if it becomes diseased or crippled, or if it dies, as so often happens just at the period when childhood terminates. Its educational birthright is recognized and provided for; but that equal claim which it has—to be brought up decently, to be protected from disease and deformity, and taught how to protect itself in the future, also needs to be regarded; and the factors which influence the cellular environment, of which fresh air is one of prime importance, must be remembered and duly utilized.

In conclusion, let me once more direct attention to the fact that beauty is a corollary of health, and just as the wiping out of small-pox has done so much to preserve the beauty of the race, in like manner attention to the treatment of those diseases which tend to promote permanent organic changes and deformities and cripplings, added to appropriate measures being taken for their prevention, will do much to further this aesthetic aspect of the work of the medical man, and of the work of those organizations which are doing such magnificent service in the way of helping suffering childhood.

HENOCH'S PURPURA WITH INTUSSUSCEPTION: LAPAROTOMY: RECOVERY.

BY

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THE occasional complication of a case of Henoch's purpura by the occurrence of an intussusception has been recognized for some years, yet the cases are of sufficient rarity to make the following worthy of record:

The patient, a boy aged 4, was brought to the out-patient department of the General Hospital by his mother; she stated that he had always been rather a delicate child with a poor appetite, and that for the last twelve months he had suffered from stomach-ache and frequent attacks of sickness. Three weeks before admission the attacks of abdominal pain and sickness became more noticeable, and were accompanied by a rash which appeared on the buttocks, and then spread to the limbs; the rash at first was definitely urticarial, the spots being raised above the surface and about the size of a shilling; these spots soon became haemorrhagic. On one occasion the mother noticed a small amount of blood in the motion. The rash faded, but fresh crops came out of a similar nature, the spots, however, being smaller. The child gradually improved, but at the end of three weeks, on the evening before admission, he had a sudden violent attack of abdominal pain, worse than anything he had ever experienced previously; he was sick, and almost immediately dark fluid blood was passed from the bowel. These symptoms of violent pain, sickness, and haemorrhage from the bowel continued intermittently throughout the night, but abated somewhat on the morning of admission. He was seen by his doctor six hours after the attack had started; examination of the abdomen, on the suspicion of an intussusception being present, failed to reveal a tumour.

On admission, twenty hours after the onset of pain, the child was pale and quiet, pulse 128, temperature normal; the belly was soft, and an irregular trilobed tumour could be felt lying somewhat transversely in the epigastrium, and apparently somewhat movable on respiration. Per rectum nothing could be felt; dark fluid blood, however, escaped on removing the finger from the bowel. The urine contained a light cloud of albumen, but gave no reaction to guaiacum. On the knees and ankles, and on the forearms, especially in the neighbourhood of the elbows, there was a slightly raised papular rash, some of the papules showing old haemorrhage.

Operation Immediately after Admission.

A median incision above the umbilicus revealed a large dark tumour lying more or less transversely across the abdomen; owing to the force with which the invaginated bowel had been thrust into the lumen of the colon, the latter had become bent on itself, giving the trilobed appearance which had been noticed on examination. The tumour was about 10 in. in length, and

the apex of the intussusception was in the upper part of the descending colon. The distal half of the swelling reduced quite easily; the proximal 4 in., however, required some twenty minutes' manipulation before the invaginated bowel could be freed, and in effecting this reduction the peritoneal coat of the ascending colon tore. This residual part of the tumour consisted of the ascending colon, containing the caput caeci, the appendix, and some 18 in. of the lower end of the ileum—these were expressed in turn. The appendix, caecum, and the ileum that had been involved in the intussusception showed extensive interstitial haemorrhage, and some inches of small bowel were black and apparently gangrenous. The part of the ileum above the obstructed portion was distended for some distance by dark blood-stained fluid lying in its lumen. The gangrenous portion of bowel, together with some inches on the proximal and distal sides of it, was excised, about 12 in. in all being removed, the open ends of the bowel crushed and turned in, and the continuity of the gut established by a lateral anastomosis between the ileum and the lower part of the ascending colon.

The patient suffered much from shock, and was very restless for the first forty-eight hours, but after that made satisfactory progress with the exception of some superficial suppuration in the wound.

The piece of bowel removed was the lowest 12 in. of the ileum; the portion next the ileo-caecal valve was gangrenous for some 4 or 5 in.; above this were two short segments, each about 2 in. long, with thickened walls, and separated by a portion of bowel quite normal in appearance. On section through the thickened segments it is seen that the bowel wall is infiltrated with blood, and measures nearly a quarter of an inch from the peritoneal to the mucous surface. Such interstitial haemorrhages are common in Henoch's purpura, and the lowest part of the ileum is a frequent site of election; it is probable that these localized haemorrhages are the usual cause of the intussusception that sometimes arises in the course of the disease.

Henoch[1] in 1874 collected a number of cases of purpura associated with vomiting, colic, and intestinal haemorrhage, and sometimes accompanied by effusion into and around the joints. Since his description this symptom group has been generally known by his name. Osler,[2] however, refers these cases into a larger class under the name of "erythema exudativum multiforme," including under this name cases presenting widely different manifestations in the skin, the viscera, and occasionally the joints. The skin lesions are polymorphic, and urticaria and purpura of all degrees of severity may be found. The visceral manifestations may take the form of gastro-intestinal crises, endocarditis, pericarditis, or acute nephritis; bleeding is common from the mucous surfaces of the nose, mouth, stomach, and bowel.

A feature of the disease is recurrence, and successive attacks may occur at intervals for many years. In these attacks one or other type of symptoms may predominate; thus, skin symptoms may be very slight or absent, with the presence of severe visceral manifestations. Such cases often present great diagnostic difficulties, until the onset of some skin or joint lesion or the history of their presence in previous attacks throws light on the deeper trouble.

Henoch's purpura presents a double problem to the surgeon. In the first place the attack often simulates an intussusception closely, and secondly, an intussusception may arise in the course of an attack of purpura.

The numerous operations that have been performed in cases of Henoch's purpura in the belief that an intussusception was present amply testify to the difficulties of a differential diagnosis. Such cases, for instance, are recorded by Burrows,[3] Sutherland,[4] and Fitzwilliams.[5]

The difficulty is especially likely to occur in those cases presenting little or no external manifestation of the purpuric condition. Such cases are by no means uncommon. In some a few purpuric spots may be found after careful search; in other cases, such as the one recorded by Theodore Fisher,[6] no skin lesion appeared from the beginning to the end of the case, which ended fatally.

Arthritis is frequently but not invariably found; it takes the form of an intra- or peri-articular effusion, and especially affects the tendon sheaths around the joints; the affected joint is swollen and tender, but may be but little painful on movement.

The symptoms of intermittent colicky pain—vomiting and blood per anum—are met with in both intussusception and Henoch's purpura, and there is really nothing distinctive about them which will help to differentiate the two conditions. The presence, however, of blood in the vomit is very suggestive, being very commonly present in Henoch's purpura, and never in my experience in intussusception.

The age of the patient may help to distinguish between the two conditions. Henoch's purpura may occur at all ages, but seems commonest in childhood; I can find no case recorded under the age of 3. Intussusception, on the other hand, in something like 70 per cent. of cases occurs in infants of under 12 months. In suspicious cases careful inquiry may elicit a past history of joint pains or swellings, of slight outbreaks of purpuric or urticarial eruption, the tendency to recurrence in one or other of its manifold forms being a most marked characteristic of Henoch's purpura.

An examination of the urine should not be omitted, and may show the presence of casts or a few red blood corpuscles in the purpuric cases. Out of eleven cases recorded by Osler, five showed evidence of nephritis of greater or less extent.

The local signs in the abdomen are of great importance in making a differential diagnosis. In intussusception during the first twenty-four hours the belly wall is commonly flaccid, mobile, and not tender in the intervals between the attacks of pain, becoming hard and fixed when the child writhes under an attack of colic. In Henoch's purpura the condition of the abdominal wall often presents exactly similar features; not infrequently, however, the belly is distended, tender, or rigid from the onset of the illness, a condition almost unknown in intussusception. Amongst the local signs of intussusception the presence of the characteristic sausage-shaped tumour, lying usually on the arc of a circle with its centre at the umbilicus, can generally be found. Cases in which an intussusception is suspected, but in which no tumour is felt, should always be examined with anaesthesia; under these circumstances, in my own experience, not more than one in twenty will fail to exhibit the typical tumour. A tumour may be present in Henoch's purpura, being caused by haemorrhage into the mesentery (Lett[7]), a coagulum lying in the lumen of the bowel (Fitzwilliams[5]), or a massive interstitial haemorrhage into the bowel wall (Grieg[8]); and though such tumours will usually lack the characteristic shape and feel of an intussusception tumour, yet it is evident that occasionally the similarity may be so great as to lead to laparotomy being performed, as in Grieg's case. To sum up: When purpuric manifestations in the skin or joints are absent, the most important points in making a differential diagnosis between the two conditions are a reliable history, a careful examination of the urine, and the presence or absence of the characteristic lump in the abdomen when examined, if necessary, under anaesthesia.

With regard to the second point, the onset of an intussusception in the course of an attack of Henoch's purpura such as occurred in the above case, several instances have been recorded, of which Lett's[7] is one of the most interesting. Here, after the successful reduction of one intussusception by operation, a second occurred four days later, leading to death of the patient. In numbers of cases haemorrhage has been demonstrated as present in the bowel wall in Henoch's purpura, usually in the lower end of the ileum. Whether this is always the cause of the intense colic is uncertain, but it seems probable. That it is the exciting cause of the intussusception in these cases there is little doubt—the tumour thus formed and the nodal interruption of the peristaltic wave that must be produced by the local paresis of the bowel wall would form just the conditions likely to produce an intussusception.

In the case I record above it is probable that the intussusception occurred with the onset of the violent pain twenty hours before operation; it is not likely that the bowel would have become so badly damaged in a shorter space of time, and although no lump was felt six hours after the onset of the pain I think it probable that invagination had already commenced, but the tumour could not be detected until it had reached a larger size. In this case the diagnosis was made easier, as the purpuric symptoms had subsided somewhat, so that the sudden access of pain followed by the presence of a lump when I saw the child, made diagnosis easy.

When, however, the acute colic of Henoch's purpura causes an intussusception to arise in the middle of an

attack, it is on the characteristic appearance of the tumour alone that a provisional diagnosis can be made, and Lett's dictum is that the appearance of this lump during an attack of Henoch's purpura resembling an intussusception justifies exploration. The discovery of an intussusception after death is a disaster, but it must not be forgotten, in considering the question of exploratory operation during an attack of purpura, that it is not without its especial risks; the wound may show a tendency to slough, or uncontrollable oozing may occur from it, and ultimately prove fatal, as in the case mentioned by Fitzwilliams.[5] The recognition of this liability to intussusception, the careful and frequent examination of the abdomen, and, if necessary, the administration of an anaesthetic if rigidity or distension of the abdomen make proper examination otherwise impossible, are the only means by which the condition will be recognized sufficiently early to render operation effectual.

I have to thank Mr. Gilbert Barling, into whose ward the patient was admitted, for permission to publish this case.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

HYSTERIA IN A LAD.

AT 11 a.m. one day a lad, aged 17, cut a piece of flesh (the size of a threepenny-piece) out of the inner side of the terminal phalanx of his left index finger when cutting off the leaves of a mangold with his pocket knife. The daughter of his employer washed the wound and dressed it with boracic ointment. He went on with his work, and appeared in his normal health during the afternoon. At 5 o'clock his employer found him leaning against the wall of his yard in a "fainting" condition. He helped him indoors and laid him on a couch.

I saw him at 7.30 p.m., and found him unconscious and very restless; the pulse was rapid and very weak; his extremities were cold. I could not get a clear history, and, thinking that he was suffering from loss of blood, I gave him a hypodermic injection of strychnine ($\frac{1}{60}$ grain) and applied hot bricks to his feet and axillae. His restlessness soon increased, and there began some violent clonic movements of his arms and legs, and twice he got into a position of slight opisthotonos. I then gave him a hypodermic injection of morphine ($\frac{1}{6}$ grain) and atropine ($\frac{1}{150}$ grain). The rigor-like movements continued, sometimes in one limb, sometimes in all. He would twist his body from one side to the other, so that he had to be prevented from falling off the couch. At no time did he have any tonic spasms. The pupils were rather dilated and reacted readily. Breathing was normal. He had not vomited, nor passed urine nor faeces, nor bitten his tongue. The temperature was 98.2°; the knee-jerks appeared normal. There was no mark nor contusion on his head nor was there any history of his having fallen down. The extremities soon became warm and the pulse full and strong.

At 11.30 p.m. he seemed much better and asked for a glass of milk, which he drank. In answer to inquiries, he said he felt quite well; his finger did not pain him, and he remembered nothing of his attack. At 2 a.m. he relapsed again and was, I am told, more violent in his movements. At 6 a.m. he became quite normal for twenty minutes, after which he relapsed again. At 10 a.m. he again became normal and walked across the room to the night-stool, where he passed about one pint of high coloured urine.

When I saw him at 11 a.m. he was again unconscious, with occasional clonic movements of the limbs and restless movements of the body. He often clutched his injured finger with the other hand. The lungs, heart, and abdomen appeared normal; the temperature was 98° F. and pulse 64. I dressed his finger again. It was looking very healthy.

For the next four days he was, for the most part, in this unconscious state, but woke up from time to time to ask for food. His bowels were open after castor oil, and he passed his urine only once a day. After the first day he could be partially roused if shouted at. The temperature varied from the first between 98° F. and 98.4° F., and the pulse never quickened above 80. Each attack grew less severe. On the fourth day of his illness, when his attendant was asleep in a chair, he got up and went into the next room to the night-stool. In his lucid moments he talked rationally, complained of nothing, and remembered nothing of his attacks. His finger healed rapidly, and on the sixth day he walked outside to a van and was driven home.

In appearance he was a healthy looking fellow. He had had no previous severe illness. His younger brother, however, I am told, is very nervous and faints if he cuts or scratches his finger. His parents are healthy, but quick tempered.

From the second day I considered his attacks to be functional and treated him by suggestion. I think the family history of nervous instability, the history of the case, and the absence of signs of any organic disease confirm my diagnosis.

RICHARD C. C. CLAY, M.R.C.S., L.R.C.P.

Fovant, Salisbury.

A CASE OF PETROL INTOXICATION.

THE minor effects of petrol fumes are well known—headache, sickness, giddiness, etc. These pass off quickly, and no bad result follows, but the following case nearly proved fatal.

P. S., aged 16, apprentice to a firm of electrical and motor engineers, was sent to clean out the pit of a private garage, the car being outside. He was called for to do something, and, not answering, was found crouched up in an angle of the pit. He was lifted out and laid in the open air, and shortly afterwards vomited violently, staggered up, seized the brush he had been using to sweep the pit, and was with difficulty prevented from continuing his work. He then became unconscious again, and was taken home (about two miles) in the car.

When I saw him, immediately on arrival, he was unconscious with shallow breathing, a weak, thready pulse, marked inward strabismus, and contracted pupils. No light reflex was present. His lips were a bright red and his cheeks flushed. He was cold and his teeth chattered, but there was no distinct rigor. The knee-jerks and other reactions were absent, nor had he any sensory reactions. His clothing smelt very strongly of petrol and his general condition was bad. The respirations, though shallow, were regular, and, as it was noticed that his pulse was slowly improving, artificial respiration was not used.

Three hours after being found he answered questions if aroused; he complained of intense headache and of a pain in his stomach. The reflexes were still absent, but the strabismus was not quite so marked. He also began to turn over and to adopt a sleepy expression and attitude. Throughout the night he slept well and quietly.

Next morning he could not remember much. He said something made him cough badly directly he stooped down in the pit. Then he thought he slipped and fell. He remembered being sick. I do not doubt that very little more of "the gas" would have been fatal. The time which elapsed between his going into the pit and being found cannot be accurately fixed, but, so far as can be judged, it was not more than about three minutes and a half at the outside.

Durham. SELBY W. PLUMMER.

THE late Dr. A. B. Duffin left net personalty £48,268.

MADAME DÉJERINE, Doctor of Medicine, has received the Cross of the Legion of Honour. This is, we understand, the first time the decoration has been given to a woman for distinction in science. Madame Déjerine is the wife of Professor Déjerine. She collaborated with her husband in the production of an important work on the anatomy of the nervous centres, and has pursued many independent researches in neurology.

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

WEST SUFFOLK GENERAL HOSPITAL, BURY ST. EDMUNDS.

A CASE OF KAPOSI'S DISEASE.

(By J. R. HAYMAN, M.R.C.S., L.R.C.P., Resident Medical Officer.)

KAPOSI'S disease, or xeroderma pigmentosum, was first described by Kaposi in 1870. Since then about eighty cases have been recorded. The present instance of the disease was in a man, aged 27, who had worked as a farm labourer. His family history was good, and there was no consanguinity of his parents.

His brother, aged 30, suffered from freckles on the face for the last twenty years, but there was no tendency to ulceration.

The history given by the patient of his illness is as follows:

When 2 years old he had several fits, after which it was noticed that his skin became dark. Freckles then appeared on his face and the back of his hands. No further change took place until he was 10 years old, when he developed a cutaneous ulcer over the left lower eyelid and a second over the infraorbital region. He was taken to the West Suffolk General Hospital. The ulcers were curetted, and the one over the eyelid healed up completely but the other only slightly improved.

Since then he has been in this hospital on seven different occasions for periods varying from five weeks to three months. Ulceration occurred over the bridge of the nose, the right lower eyelid, the right tragus, and the depression between the angle of the jaw and right mastoid process and the lower lip. The treatment on each occasion was by curetting. In addition he was treated in 1907 with Finsen light and *x* rays. All the ulcers healed except one over the left maxilla, one over the right tragus, and one over the right half of the lower lip.

The patient was last admitted in October, 1912. Previous to this he had not been treated for five years. His condition on admission was as follows: There were freckles and deep pigmentation over the face, scalp, neck, back, the front of the legs, the outer side of the upper arms, the forearms, and the back of the hands. The freckles varied in colour from light brown to very dark. At places they were confluent. The skin over the back of the hands was warty and nodular, and that over the face gave a dry parchment-like sensation. A few scattered telangiectases were present in the pigmented area. There were three ulcers on the face, one over the left maxilla measuring $1\frac{3}{8}$ by $1\frac{1}{2}$ in. Part of this was raised and fungating, and part of it excavated; the edges were not everted. It was fixed to the maxilla, and could be felt on the inner side of the cheek. It had been present for twelve years. The second ulcer was situated on the right side of the lower lip, and had been present for nine years. It measured $1\frac{1}{4}$ by $1\frac{1}{4}$ in., and was excavated. The third ulcer was situated on the right tragus, and had been present for many years. It measured $\frac{1}{2}$ in. across, and was covered by a scab; it discharged a little clear serous fluid. None of the ulcers showed any tendency to bleed, and only the infraorbital wound gave rise to any pain. The ulcers appear to have commenced as small warts, which broke down and ulcerated. There was ectropion of the lower eyelids. The conjunctivae were deeply congested, and adhesions were present between the ocular and palpebral portions at the lower fornices. Sight was not affected. The general health was good, and the patient took his food well. There was no evidence of any secondary infection. A simple blood count gave the following result: Erythrocytes 5,500,000, leucocytes 10,500, haemoglobin 95 per cent., haemoglobin index 1.1.

For the first two months after his last admission the patient was treated with *x* rays twice a week. Three minutes at each sitting was given to each of the three ulcers; a simple dressing was applied. Arsenic was given internally. The ulcer over the left maxilla decreased slightly, but neither of the other two were affected.

On December 14th, 1912, the patient was anaesthetized and the ulcers of the cheek and lip curetted. Three weeks later the ulcers had become much reduced in size, that on the cheek measuring $\frac{3}{8}$ by $\frac{7}{8}$ in. and that on the lip $\frac{7}{8}$ by $\frac{7}{8}$ in., but ulceration had commenced on the upper lip and was rapidly extending.

On February 9th, 1913, the patient was again operated on. The ulcers of the cheek, upper and lower lips, and on the tragus were thoroughly curetted. The ulcer on the tragus was found to extend $\frac{1}{4}$ in. deep and that of the lower lip to have perforated the cheek.

At the present time all the wounds have much improved. The ulcers of the tragus and of the upper lip have entirely healed. That over the left maxilla has become reduced in size to $\frac{3}{8}$ by $\frac{1}{4}$ in., and that on the lower lip to $\frac{7}{8}$ by $\frac{1}{4}$ in. Unfortunately a fresh ulcer has commenced on the right side of the upper lip, and this will be curetted later. At present there is every prospect of the ulcers healing, but the ultimate prognosis of the case is unfavourable.

I am indebted to Dr. Hinnell for kindly permitting me to report this case.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

SOUTHERN BRANCH: PORTSMOUTH DIVISION.

A CLINICAL meeting was held on March 5th, when Mr. BOSWORTH WRIGHT (Chairman) and twenty-one members were present.

Clinical Cases.

Dr. COLE-BAKER showed two cases of restoration of the nose by plastic operation, and also a case of dislocation of the scapula upwards and forwards, the origin of which was unknown. Dr. CRAWLEY showed a case of spastic nervous disease for diagnosis, a case of skin disease involving one side of the face, and a case of congenital total absence of the eyes, attributed by the mother to maternal impression. Dr. LEON showed a case of heart disease with multiple exostoses. Mr. RIDOUT showed three cases of frontal sinus empyema treated by a modification of Killian's operation.

Pathological Specimens.

Dr. BANKART showed hairs from a case of monilethrix, and read a communication on the pathology of the disease. Dr. KEY and Dr. LISTER WRIGHT showed specimens of salivary calculus. Mr. CHILDE showed a specimen of myeloid sarcoma of the left parietal bone, in which the gap in the dura mater left after removal of the tumour was filled by fascia lata taken from the thigh; he showed also a prostate removed from a patient aged 81 after thirty years of catheter life without aseptic precautions and without cystitis.

GLOUCESTERSHIRE BRANCH.

A GENERAL meeting of the Gloucestershire Branch was held at the Royal Infirmary, Gloucester, on March 20th, when the PRESIDENT was in the chair and sixteen members were present.

Cases.

Mr. FIRMIN CUTHBERT showed two cases after operation for talipes and acute osteomyelitis of the tibia respectively. Dr. FINLAY showed a case of progressive muscular dystrophy in a boy aged 9 years. Dr. Goss gave the history of a case of malignant disease of the pancreas, and showed the specimen. Dr. WAYLAND ANCRUM read notes of the following cases: (1) Malignant disease of the ileo-caecal valve; (2) extreme dilatation of the caecum; (3) adhesion of bowel to the anterior abdominal wall, forming a false sac; it had caused periodic attacks of intestinal obstruction. Dr. KNIGHT showed a woman after partial removal of the lower jaw for osteo-sarcoma, and the growth removed.

Reports of Societies.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF MEDICINE.

Friday, February 28th, 1913.

Dr. J. O'CARROLL, President, in the Chair.

An Unusual Nervous Case.

DR. PURSER showed a patient of Dr. O'Carroll for diagnosis, a male, 40, single, a harness-maker. He had suffered from gonorrhoea twenty years ago, but syphilis was denied, and Wassermann (blood) negative. Two years previously he had been attacked by sudden weakness and stiffness in the right thigh, recovering after hospital treatment. Six weeks later a similar condition occurred in the left thigh. Improvement was slow and incomplete. There was a gradual relapse to the weak condition of the right thigh. Now, he could only walk with the help of two sticks or a crutch. Five or six years ago he had pain, described as lumbago, lasting a few months. For two years or more he had pains in the legs, like the "lightning pains" of tabes. The cranial nerves were in all respects normal; no Argyll Robertson pupil; no optic atrophy. The upper extremities were normal; trunk showed zone of anaesthesia fifth to ninth dorsal segments, not absolutely complete; relative analgesia to pin-prick in a slightly wider band. Weakness and wasting in the muscles supplied by third and fourth lumbar roots were marked most especially in the right quadriceps, which two months ago appeared quite paralysed, but now showed some slight contraction. The muscular condition showed a tendency to improve. Besides the "lightning pains" referred to, there was slight anaesthesia to cotton-wool in both thighs and down inner aspect of legs. There was relative analgesia to pin-prick all over the lower extremities up to Poupart's ligament. Thermal sensation was normal, except in that "cold" was felt occasionally after stimulus had ceased. Muscle-pain sense was absolutely lost. Sense of position and of passive movement in toes and ankles less acute than normal. Compass test—4.5 cm. on soles. Knee-jerks and ankle-jerks were lost, but abdominal and plantar reflexes were normal. There was no sphincter trouble at any time. Lumbar puncture repeatedly failed (and further attempts were not allowed), on account of deformity in the spine. *X* ray showed that the fourth lumbar vertebra was rotated around a vertical axis, so that the spine looked rather towards the right, and it was rotated also, so that the lower articular process on the right was on the same level as the upper articular process on the left. The intervertebral discs between the third and fifth lumbar vertebrae were apparently gone. The body of the fourth lumbar vertebra was small. There was no evidence of traumatism or tuberculosis. Dr. Purser submitted that though most of the motor symptoms could be explained by the spinal lesion, that lesion, being apparently mechanical in its action on the nerve roots, could not explain the sensory disturbances in the legs nor the anaesthesia around the trunk. He suggested a diagnosis of tabes dorsalis with spinal lesion (giving rise to the motor trouble) analogous to Charcot's disease in other joints, but admitted that it was not convincing. Dr. FINNY said it was very hard to grasp the whole case with sufficient accuracy to be able to recognize the importance of the different phenomena presented. It seemed to be very compound, beginning with the motor paralysis of one muscle, partial or complete recovery from which was followed on the left side by a repetition from which the recovery was imperfect. The area of anaesthesia and analgesia were peculiar. The anaesthesia seemed to be in areas other than those supplied by the third and fourth lumbar roots. The physical deformity from which the patient suffered in the absence of an accident was unusual. The small amount of loss of tone shown in the case was against the tabes dorsalis diagnosis. He also suggested that the patient had not got the typical gait of locomotor ataxy. Dr. KIRKPATRICK referred to the fact that Dr. Purser explained the weakness in his patient's legs by a lesion in his anterior nerve roots (third and fourth), and attributed his sensory phenomena to another disease altogether, but it seemed to him (Dr. Kirkpatrick) difficult to understand that he should have a lesion of his anterior nerve roots and no lesion of his posterior nerve roots. He was not in a position, however, to offer any other diagnosis, but in the absence of a specific history and of Argyll Robertson pupil there appeared to be a great deal of difficulty in accepting the diagnosis of locomotor ataxy. As to whether any such condition of the spinal column was found similar to Charcot's disease he could not say, but he pointed out that in Charcot's disease there was always considerable destruction of the joint, and he thought if the patient suffered from any such condition in his spinal column within recent years there would be some more evidence of it than a mere pain like lumbago. The explanation of the condition he considered very ingenious, but there seemed to him to be very much, if not more, against the acceptance of it than there was for it. The PRESIDENT endeavoured to give an easy explanation of the case. The man had a spinal disease with neuritis of his motor nerves and possibly ascending degeneration in the posterior column—pseudo-tabes dorsalis. The other mischief would be sufficiently accounted for by the compression of the sensory nerves.

The Coeliac Affection.

Dr. DRURY read a paper on a case of "the coeliac affection," the title under which Gee described the condition in 1888. A girl, aged 3½ years, had an apparently ordinary attack of diarrhoea, which, however, persisted and then three or four very bulky motions were passed in the twenty-four hours. These were like porridge, but white, sometimes frothy, and extremely fetid. There was no fever, but great lassitude, emaciation, and distension of the abdomen. No treatment was of any avail until the child was put on an almost pure meat diet, small pieces of thin, well-toasted bread being the only other food allowed her. Under this the stools soon became normal, and in a few weeks she began to regain her spirits and put on weight. The etiology of the condition was not known. Dr. FINNY said that coeliac disease was so far free from all pathological definition, but the idea that it was a catarrh of the duodenum and upper ileum seemed to be the most likely. The condition was very rare, and in his long experience he had only a record of three cases. The first patient was a fine boy about 3 years old, said to be sweet-tempered, but more probably apathetic. His abdomen was doughy, his motions were as large as those of an adult, and he had several of them in the day. He would sit in whatever position he was put, and never ask to be removed, and he appeared to have difficulty in moving his lower limbs, but he was in no way paralysed. Smith's method of treatment was adopted, all milk was stopped, and a meat diet substituted. Recovery was very rapid, as it was only two or three months before the child got back to ordinary diet. Two other cases similarly treated also made satisfactory recoveries. He never met with a case in his hospital practice, and he wondered if the disease was peculiar to well-fed children. Dr. O'KELLY related the case of a fellow student. Whenever this young man took milk he invariably had a tendency to diarrhoea; the stools became white, and there was loss of flesh. When milk was discontinued the condition disappeared. Dr. CROFTON said the case was one of much interest to him, as he had come across others where the stools were white, and the treatment he adopted was to make a vaccine for the catarrh, and this generally cured it. He suggested that all cases of indigestion were due to micro-organisms, and reacted well to vaccine treatment. He inquired if any micro-organisms were discovered in Dr. Drury's case. Dr. CAHILL agreed with Dr. Crofton that a vaccine would have done some good. Dr. NESBITT said that the character of the motions implied that the trouble was the defective digestion of the carbohydrates and fats, and treatment with pure protein would bear out this view. There might have been an absence of pancreatic secretions. Very full examination of the stools was absolutely essential, and not only would fat have to be looked for, but fatty acids. In regard to vaccine treatment he referred to the multiplicity of bacteria in the intestinal tract, and asked how the microbe that would cure this condition was going to be isolated. The PRESIDENT related an instance where a boy

aged 2½ years was not confined to bed, but presented a very curious picture, with a pink and white complexioned face, little thin legs supporting a huge, almost spherical body. At that age, and with a history of having been brought up on artificial food, he thought it was a case of rickets, but eventually the idea of getting a name for the condition was given up, and no information could be ascertained. The little patient was, however, put on a minced meat diet, much the same as that indicated by Dr. Finny, the meat being rubbed down and given on extremely thin toast and agreeably flavoured with currant jelly. On this treatment the child got well, but the treatment had to be renewed from time to time, as he took farinaceous food. He was afterwards called on to treat the child for tapeworm. This was the second case that he had seen of tapeworm following raw-meat treatment.

EDINBURGH OBSTETRICAL SOCIETY.

Wednesday, March 12th, 1913.

Dr. Haig Ferguson, President, in the Chair.

Intraperitoneal Haemorrhage from Ovary.

Professor Kynoch (Dundee) read notes on an instance of this condition in a 5-para, aged 38. There had been irregular and painful menstruation ever since the birth of the last child, five and a half years ago, but amenorrhoea between September and December, 1912, then a show appeared for seven days, and a fortnight later a sanguineous discharge was noted; it lasted until January, 1913. There had been six attacks of abdominal pain, and when the patient was seen, symptoms of intraperitoneal haemorrhage were marked. The abdomen was opened and found full of blood which issued from a small ovarian blood cyst. There was no microscopic evidence of ovarian pregnancy. The patient recovered.

Subinvolution due to Persistent Corpus Luteum.

Dr. F. W. N. Haultain showed an ovary with a large corpus luteum removed from a patient four months after labour. During pregnancy there had been severe pain on the corresponding side, and it continued after labour. Before the operation the uterus was markedly subinvoluted and the blood showed 5,800,000 red and 19,200 white cells. Within a week after operation the reds were 4,875,000 and the whites 16,000. A few months later the uterus was of normal size. It was suggested that the subinvolution was dependent upon a non-disappearance of the corpus luteum of pregnancy.

Rare Uterine New Growths.

Dr. Haultain reported three cases. In the first, a patient of 59 had a child at 30 and ceased menstruating at 45. Two years later bleeding returned and reappeared at intervals of eight to ten weeks. It was never severe till recently, when after curettage the mucous membrane was found to show a simple papillomatous change. As the bleeding continued hysterectomy was performed, when a diffuse hypertrophy of the mucosa was found. There was no malignancy. The second patient, 35 years old, was unmarried and virginal. On examination the cervix was seen to be the seat of a swelling in colour and shape like a large bramble. Examination of a small piece showed tubercle, and the cervix was removed by amputation. The patient was well sixteen years later. The third patient, 21 years old, had severe dysmenorrhoea, and, after removal, the uterus was found to be beset by a large number of fibrous nodules towards the mucous aspect. The author has called this condition "diffuse nodular fibrosis."

Perithelioma and Necrobiosis in Fibroids.

Dr. Barbour recorded two cases of fibroid where degeneration caused difficulty in diagnosis. A patient 62 years old underwent removal of a large sloughing fibroid polypus at the age of 55. Five years later the abdomen began to swell, ultimately reaching the size of a seven months pregnancy. On removal the uterus was found transformed into a cyst, on the wall of which a mass was present. It was, as the microscope showed, a fibroid undergoing peritheliomatous degeneration. In the second patient, 51 years old, a rapidly growing fibroid the size of an eight months pregnancy was removed for severe pain. The patient was gravely ill at the operation and died six days after. The tumour was necrobiotic and showed advanced red degeneration.

ROYAL SOCIETY OF MEDICINE.

Sections of Ophthalmology and Neurology.

Wednesday, March 12th, 1913.

Sir Anderson Critchett, C.V.O., President, in the Chair.

Resumed Discussion on Disease of the Pituitary Body.

Dr. Turney discussed a case which he had shown at the last meeting. The symptoms referred mainly to the posterior lobe. The patient was a lady, aged 25, who, until 1907, showed no abnormality. Menstruation, previously regular, then ceased entirely. Her friends noted her increasing stoutness, and during the last two years bruises readily appeared, especially on the legs. There was also pain in the back, starting from a kyphotic curve in the upper dorsal region and travelling round the ribs. Mentally she seemed unaffected, and her sight remained good, except for the slight error of refraction to which she had always been subject. Thyroid extract had been administered repeatedly, but was given up as it caused palpitation. In spite of the obesity now present, her weight was now less than formerly; her face had become fat and florid, but there was no puffiness about the eyes. The hair was dry and somewhat scanty, but the eyebrows were present. The expression was bright, and the manner alert. The skin was not pigmented; the pubic and axillary hair was scanty. The upper limbs were of normal size, whilst the lower limbs and buttocks were thin. The thyroid was normal in size and consistency. No evidence of enlarged thymus, lymphatic glands, or spleen could be detected. X-ray examination showed absorption of posterior clinoid processes. There had never been increased intracranial pressure or involvement of the nervous system. In July, 1912, Mr. J. H. Fisher reported that the white, blue, and red fields were not transposed, and there was no certain evidence pointing to the probable development of temporal hemianopia. On recent examination, surrounding four-fifths of the right disc there was now a subretinal exudation of glistening character and ill-defined limits; no blood there except two or three very fine spots on the white area; otherwise each fundus was normal. The blood pressure on admission was 200 mm. of mercury, and it had remained at about that level ever since. There was a tendency to polycythaemia, without other blood changes. At one examination the red cells reached 8 million. A spontaneous fracture of the sternum, between the manubrium and the gladiolus occurred. The urine was normal, and there was no polyuria. The sugar tolerance limit was normal at about 120 grams of laevulose. Professor Dixon had examined the urine, and found it to contain a pressor substance in considerable quantity: 10 c.cm. of the urine injected into a cat raised the blood pressure 70 or 80 mm., whereas a similar injection of normal urine would lower the blood pressure nearly to the base-line. Dr. Dixon added that this patient's urine contained one hundred times the pressor substance found in normal urine, and that it corresponded closely with the urines of cases he had examined of acromegaly. Extract of posterior lobe was given, at first subcutaneously, but this method had to be abandoned owing to the tendency to superficial necrosis. The patient showed no increased tolerance to carbohydrates. The presence of the pressor substance showed that the pituitary secretion was in excess. Dr. Turney discussed the case fully, his conclusion being that the patient had a pituitary-sexual-gland syndrome, the lesion being in the posterior lobe of the pituitary. A possible alternative was that there was a temporary failure of the element controlling carbohydrate metabolism. Professor Dixon reported his investigations in the case of a man subject to acromegaly for ten years. The patient had an enormous heart, without any rise of blood pressure. On injecting 1 c.cm. of the urine into the cat, the blood pressure went up, and the injection of 5 c.cm. caused it to rise to 80 mm. The active substance was urohypertinsin. The man died suddenly as a result of some extra exertion. The pituitary body was as large as a walnut, and the heart weighed about 3 lb. Dr. A. E. Garrod gave a description of a case in which myxoedema and acromegaly probably coexisted. The improvement under thyroid treatment left no doubt as to the thyroid defect. The evidence of acromegaly was less conclusive; a skiagram showed

enlargement of the sella turcica. Dr. WILLIAM HILL discussed the best route for operative treatment of pituitary tumour. He did not favour Cushing's method, preferring that used in submucous resection, followed by the short, though dangerous, further step. The chief danger was that of wounding the optic chiasma. Hirsch's operation was simpler than that of Cushing, and Dr. Hill, like Mr. Graham, found that it gave good access to the tumour. He gave a word of warning as to the dangers of the operation, especially without exhaustive preliminary study. Dr. LANGDON BROWN discussed the subject, and showed photographs of a case. Mr. RICHARDSON CROSS (Clifton) drew attention to the importance of the interrelation of the various glands of the body in the economy, particularly the ovaries, the testes, the pituitary, perineal, suprarenal, and thyroid bodies, and the thymus. He had found great benefit from the administration of thyroid and pituitary extracts. Dr. F. E. BATTEN and Dr. GRAINGER STEWART also took part in the debate.

SECTION OF LARYNGOLOGY.

AT the meeting on March 7th, the President (Mr. HERBERT TILLEY), who was in the chair, showed a larynx removed after death from *A patient aged 58, who had worn a tracheotomy tube for eighteen years.* The operation had been performed for dyspnoea due to the cords remaining in a position of adduction. Mr. T. W. P. LAWRENCE described the cricoid as congenitally deficient in the transverse diameter, and split by a gap filled in with a membrane continuous with that of the trachea. The rima was reduced by the consequent approach of the thyroid alae and the close apposition of the mesial surfaces of the arytenoids. The PRESIDENT considered that some inflammatory condition must have determined the late onset of dyspnoea at the age of 40. Sir FELIX SEMON read notes of a somewhat similar case. Mr. W. HOWARTH demonstrated *Killian's apparatus for suspension laryngoscopy*, with a thyroid depressor calculated to bring the anterior commissure into view. Mr. T. B. LAYTON suggested that it was more convenient to attach the "gallows" on the left side of the patient, as on one occasion he was compelled to perform tracheotomy during a "suspension" operation. Mr. E. B. WAGGETT commented on the fact that the important pyriform fossa came into excellent view by this method, which was also praised by Sir FELIX SEMON and the PRESIDENT in that both hands were freed from the irksome task of holding the laryngoscope in position. Dr. DAN MCKENZIE showed a man aged 56 in whom a *Laryngectomy had been performed fourteen days after tracheotomy.* The upper end of the trachea was closed with catgut sutures, and attached to the skin flaps. The transverse incision was left partly open and packed with gauze to absorb discharges. The tracheal sutures cut through in ten days; the patient now breathed through the gaping end of the trachea, which by this time was separated from the upper wound. All diseased teeth were previously extracted, and a feeding tube retained in the oesophagus for sixteen days. Sir STCLAIR THOMSON commended the excellent result, but advised laryngotomy as a prelude to laryngectomies. Dr. D. R. PATERSON considered that the above operation was excellent for patients with a short neck, as the trachea was thereby anchored to the skin before laryngectomy was performed. Dr. DAN MCKENZIE exhibited a case in which *West's operation for obstructed nasal duct*, consequent on a previous operation for ethmoiditis, had been performed. A flap of mucous membrane was turned back from the middle nasal fossa. The lacrymal canal was then opened by a gouge and a communication made so that the lacrymal probe passed through the sac into the middle fossa. Dr. D. R. PATERSON stated that after West's operation patients could not conveniently use a handkerchief without pressure on the lacrymal sac. Von Eicken had opened the naso-lacrymal canal into the antrum. He had found that excision of the sac gave better results. Mr. T. JEFFERSON FAULDER exhibited a man, aged 21, with *Recurrent loss of voice.* The interarytenoid space was occupied by a papillomatous mass, yet it was uncertain if adduction of the cords was prevented by the presence of this growth or infiltration. The trouble was probably tuberculous. Mr. H. BARWELL considered that the tuberculous tumour could be removed by angular forceps. Mr. FAULDER also showed a *Nasal quadrilateral cartilage with a circular hole.* There was no deficiency in the mucous membrane. With such a condition during a submucous resection, perforation of the mucous membrane had to be avoided. Dr. DAN MCKENZIE considered the pressure of a crust led to destruction of the mucous membrane and cartilage. Dr. WILLIAM HILL related how, in haematoma of the septum, a perforation of the cartilage was always present. Mr. E. B. WAGGETT alluded to the destruction of mucous membrane and cartilage described by Zuckerkandl as xanthosis of the mucous membrane. Mr. E. D. DAVIS exhibited a larynx removed *post mortem*, and a patient; in both cases the epiglottis had been amputated for *Dysphagia due to tuberculous ulceration.* Treatment in the first case had lasted over six months, and had included curetting of the arytenoids under suspension laryngoscopy. The ulceration healed, but a relapse occurred during tuberculin B.E. treatment. The pain of increased ulceration was abolished by injection of eucaine and alcohol into the internal laryngeal nerves. An exacerbation of lung trouble resulted in death, but the vigorous local treatment had relieved the pain and prolonged life. The second case, which was chronic, had derived benefit from amputation, and was receiving tuberculin B.E. Mr. H. BARWELL remarked that ulceration of the epiglottis usually indicated extensive tuberculous mischief, so that the ultimate fatal result detracted somewhat from the immediate relief of the operation. In a certain but limited number of cases, where the epiglottis only was effected, amputation gave the best results. Mr. H. L. WHALE exhibited a specimen which had been removed after laryngotomy. Dr. JOBSON HORNE some years previously had diagnosed prolapsed laryngeal ventricle. It had caused dyspnoea and dysphagia for five weeks. Part of the lumen had remained shut off and still retained ciliated columnar cells, but the everted lumen had become covered with metaplastic squames. Mr. HAROLD BARWELL exhibited a man, aged 80, with *Infiltration of both ventricular bands anteriorly.* The rest of the cords moved fairly well, and were normal. Movable cervical glands and a small carotid aneurysm were present. The sputum contained numerous pneumococci, but no tubercle bacilli. The PRESIDENT indicated that examination of one gland would determine the nature of the disease. Mr. HAROLD BARWELL also brought forward a case of *Suppurating mucocele of the frontal sinus* in a boy, aged 12. The anterior and orbital walls projected as a hard swelling, while pus appeared in the hiatus semilunaris. Dr. DAN MCKENZIE pointed out that one view regarded the sinus opening as occluded, but many of these cases were due to occlusion of a gland in the mucous membrane lining the wall of the sinus, and such appeared to be the condition in the present case, as pus was coming away. The PRESIDENT had examined cases of mucocele and found the infundibulum open. Dr. ADOLPH BRONNER had found injection of tincture of iodine of great help in chronic empyema of the frontal sinus. Mr. FRANK ROSE exhibited a child, aged 10 months, with a *Congenital tumour of the septum;* it was pale and smooth, and caused obstruction from the first. Microscopically, it appeared to be a glioma. Mr. NORMAN PIKE exhibited an encapsuled *Spindle-celled sarcoma removed from the tonsil.* Two small cervical glands had also been dissected out. Mr. J. F. O'MALLEY brought a man, aged 54, the subject of a *Malignant growth in the antrum*, and also a woman, aged 41, with *Bilateral purulent rhinitis* of three months' standing. There was no evidence of sinus disease. A microscopical examination of the anterior end of an inferior turbinal suggested lupus. Mr. T. B. LAYTON had seen similar cases where removal of septic stumps had resulted in cure. Dr. DONELAN'S case of *Congenital syphilis with sinking in of the nasal bridge* and intranasal obstruction was discussed. Mr. JEFFERSON FAULDER suggested the subcutaneous insertion of a piece of cartilage along the track made by a tenotome in preference to paraffin. Dr. DONELAN'S case of *Post-diphtheritic adhesion of the soft palate* and cicatrices about the mouth was next brought forward. The PRESIDENT considered it doubtful if diphtheria gave rise to such considerable ulceration. Dr. WILLIAM HILL brought a specimen of a large *Pituitary tumour* and brain from a patient who had died after operation by the nasal route for decompression. General

signs of acromegaly were present, and enlargement of the pituitary fossa was indicated by a skiagram. Bitemporal hemianopsia was a symptom. A Killian incision was used and a burr applied to the roof of the larger right sphenoidal sinus. The passage of the burr was followed by free haemorrhage, which recurred, and was stopped by plugging the sphenoidal sinus. Death from increased intracranial pressure resulted in eight hours. After death a large pituitary tumour was found containing a haematoma and distending the pituitary fossa. The haemorrhage was due to perforation of the intercavernous veins or bleeding into the substance of the tumour. Dr. WILLIAM HILL discussed the difficulty of dealing with haemorrhage in this operation, and recommended plugging the sphenoidal sinus as entailing less risk; he considered it was a matter of chance whether the intercavernous veins were damaged. As to the form of incision, he pointed out that Ollier's—by which the soft nose is turned down by an incision at the level of the nasal bones—placed the operator 1¼ in. nearer the sphenoidal sinuses. Mr. C. I. GRAHAM brought the specimen removed after death from the patient shown at a previous meeting. Unluckily, the growth was a perithelioma growing from the third ventricle, and in spite of remarkable relief after the operation, the patient succumbed. He advocated splitting the skin over the inferior margin of the septum. At a second operation he had split the left nostril upwards, and obtained more room by removal of the middle turbinal; he had found hydrogen peroxide very uncertain in its action. Mr. E. B. WAGGETT remarked that infantilism, which follows removal of the pituitary body, should be taken into consideration when dealing with these cases. Mr. PIKE mentioned that Eisenberg operated with the head over the end of the table. Mr. O'MALLEY had noted that Hirsch used nibbling forceps. Dr. W. H. KELSON showed a section of the pedunculated growth removed from the inferior turbinal. It had the structure of a fibro-angioma, but it did not bleed. In discussing the matter with Dr. Hemington Pegler, he thought that the bleeding of these growths was a question of ulceration, to which the inferior turbinal was not exposed. The PRESIDENT, in discussing Mr. T. B. Layton's case of *Cyst of the tonsil*, advised enucleation; he considered such cysts were an explanation of certain abscesses of the tonsil. Mr. WALTER HOWARTH again brought his case of *Papilloma of the tonsil*, from which a fibroma had been removed. Mr. BARWELL and Dr. DAN MCKENZIE advised a microscopical examination in case the infiltration present denoted malignancy. Dr. LOGAN TURNER discussed the possibility of tubercle being present. Dr. BROWN KELLY related the details of a case of *Spreading papilloma*. Dr. DUNDAS GRANT brought a case of *Unilateral paralysis* affecting the palate and cord, probably due to suppuration at the apex of the petrous bone. Mr. W. M. MOLLISON exhibited a case of *Haematoma of the right side of the larynx*, consequent on a kick.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

AT a meeting on March 14th, at which the President (Professor E. W. HOPE) was in the chair, Dr. LOUIS C. PARKES read a paper on *Block dwellings for the working classes*. The necessity for accommodating the working classes in block dwellings arose from the heavy price which had to be paid for land in urban centres, for larger numbers in proportion to superficial area of land could be housed in these dwellings than in cottages or single houses, even if the latter were only provided with the minimum curtilage or open air space required by law. For many workmen engaged in regular industries it was no doubt preferable that they should reside in the purer air of the country or suburb, but there were still many for whom it was essential that they should live near to their work, and especially those who were mainly dependent on casual employment and who must be on the spot and near to the job likely to fall their way. There was no difficulty in housing men in regular employment and in making schemes remunerative, provided the tenants were not allowed to get into arrears with their rents, which should be collected in advance. During the eight years since their erection, in the Sir Thomas Nore Buildings, owned by the Chelsea Borough Council, on an average 98.4 per cent. of the gross rental had been collected. The average weekly earnings of the occupants were about 31s., while in the Grove Buildings, belonging to the Chelsea Council, no tenant was accepted who earned over 25s. weekly. Even in the latter the loss from empties and rents uncollectable was only 0.7 per cent. of the gross rental. It paid financially to house those in regular work in block dwellings of sufficient size, with good modern arrangements, and in a neighbourhood where there was a demand for such dwellings. For the casual worker it was extremely doubtful whether any kind of housing scheme could be made self-supporting, and industrial dwellings companies would not undertake such provision. Life in block dwellings did not run smoothly unless the tenants generally were prepared to obey the rules and regulations made largely for their convenience and comfort, unless they were cleanly and tidy in their homes, civil to their neighbours, and capable of developing a certain pride in the orderliness and good character of the dwellings. In block dwellings of modern type, occupied by what might be described as a selected working-class population, the vital statistics were usually excellent, and showed that working people who had regular incomes and were above the poverty line could lead the healthiest kind of lives. Dr. Parkes emphasized the importance of employing for block dwellings a really capable resident superintendent. A good-class man was required, who would maintain order and discipline, and yet, by the exhibition of tact and discretion, earn the respect and confidence of the tenants. The PRESIDENT considered that playgrounds in connexion with block dwellings were essential. In Liverpool large areas of slum property had been cleared, and provision had been made on them for the poorest classes. Mr. JOSEPH, the architect to the Lewis and Sutton Trusts, considered that the most economical height of block dwellings was five stories, and that the width between the blocks should be equal to their height. He was of opinion that common lodging houses for women would not pay. Sir SHIRLEY MURPHY agreed as to the difficulty in providing lodging houses for women. Professor KENWOOD maintained that habits counted more than environment, and instanced certain streets occupied by Jewish families, where the lowness of the mortality-rate was quite startling if compared with adjoining streets. Dr. CHARLES PORTER regretted that medical officers of health were not more frequently consulted in connexion with the erection of industrial dwellings. Dr. HERBERT JONES emphasized the importance of having a capable superintendent of block dwellings.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

AT a pathological meeting of the society, held on February 7th, the President (Dr. G. P. SHUTER) in the chair, the following specimens were exhibited and discussed:—Dr. ARTHUR SAUNDERS: *Congenital hypertrophic stenosis of the pylorus*. In addition to the usual hypertrophy, there was a sharp kink at the pyloric end of the stomach, almost sufficient in itself to obliterate the lumen of the canal. The patient was admitted to hospital at the age of 5 weeks for frequent and forcible vomiting. Visible peristalsis could be seen after feeding. The stomach was not dilated, and although it could be distinctly felt through the thin abdominal wall, no mass could be felt in the neighbourhood of the pylorus. As the symptoms improved somewhat under careful feeding, it was hoped that the child would improve sufficiently for a gastro-enterostomy to be performed, but in the ninth week of life an attack of diarrhoea occurred, to which it rapidly succumbed. Mr. ASLETT BALDWIN: (1) *Rodent ulcer of forearm* excised from a man aged 61. It started in a scar caused by lacerations from iron nails, and had been present for five years, sometimes showing signs of healing. (2) *Tumour of epididymis* from a patient aged 64. The epididymis was about four times the size of the testis, which presented no abnormality, and the central portion had broken down. Microscopically the tumour did not appear to be tuberculous or syphilitic, but merely inflammatory; various opinions, however, were given as to its nature. Hydrocele had been present for years, and a month before admission to hospital a severe pain and inflammation in the left side of the scrotum occurred. There had been no urethritis or injury. (3) *Hypernephroma*

of left kidney from a woman of 60, without urinary or other symptoms, except dragging pain in left side of abdomen. Removal about a year ago, and patient still well. Mr. W. McADAM ECCLES: (1) *Mucocele of gall bladder*, removed *post mortem*. Calculus impacted in cystic duct. (2) *Mucocele of gall bladder*, removed from a woman who had for many years symptoms of dyspepsia, but never jaundice. The cystic duct was tied, and she made a very good recovery. (3) *Tuberculous salpingitis*, removed from a woman aged 25. She recovered, and is now married, but has not been pregnant. There were tubercles over the parietal peritoneum of Douglas's pouch. In reply to some remarks, Mr. McAdam Eccles said that in serous tuberculous peritonitis laparotomy was generally followed by a cure. He believed that peritonitis of a tuberculous nature in the female was caused by infection from the Fallopian tubes, and it was best to remove the tubes whenever possible. In his experience this type of case hardly ever did well if the tubes were not removed. (4) Five *Calculi from the bladder* of a woman aged 29. Since the age of 17 up to date of operation she had passed no less than 278 calculi. The stones exhibited were passed spontaneously with great pain; they proved the wonderful dilatability of the female urethra. There was no subsequent incontinence of urine. (5) *Malignant teratoma of the testis* removed from a man aged 32. It was a mixed tumour containing elements showing its teratomatous nature, and it had also sarcomatous elements. The patient died six months after operation with secondary deposits. Dr. HAROLD PRITCHARD: Specimens from a case of *Banti's disease*, a late and terminal stage of splenic anaemia. Death had occurred at the age of 9 years, with all the signs of portal obstruction and marked ascites. The liver was small and contracted, with an irregular surface, and showed the changes found in typical multilobular cirrhosis. The spleen was large and tough, and contained some considerable amount of fibrous tissue. The peritoneum was thickened. Mr. T. JEFFERSON FAULDER: *Guillotined tonsils* shown to illustrate that practically any kind of tonsil can be removed complete in its capsule simply with a guillotine and a short anaesthetic. The series presented included all varieties of tonsil—the common bilobed type, the flat tonsil, all grades of embedded tonsil, and tonsils reduced to the condition of mere pyogenic membranes. Many of them had been operated on previously. In reply to questions by Mr. McADAM ECCLES, Mr. RICKARD LLOYD, and Mr. SHUTER, all details were explained, and Mr. FAULDER pointed out that the operation called "enucleation" was invented to meet the cases in which the guillotine, as used originally, had failed to cure, and the necessity for the invention of enucleation sufficiently showed that the clinical results obtained by slicing off a portion of the tonsil were often unsatisfactory. By the new method, introduced by Sluder, one could remove as much or as little of the tonsil as was thought desirable, and the operation was a much less formidable procedure than enucleation by the methods hitherto adopted. Dr. H. H. SANGUINETTI: *Acid-fast organisms from distilled water* closely resembling tubercle bacilli. It was important to bear in mind this possible source of contamination when investigating the presence of tubercle bacilli, especially by the antiformin method or by the inoscopic method of Jousset. Dr. Sanguinetti also exhibited (for Drs. Bernstein and Elworthy) the following specimens from the pathological department of the West London Hospital: (1) *Splenomedullary leucocythaemia* showing large basophil myelocytes stained by Wright's method. (2) *Spirochaeta pallida* from a primary sore on lip. (3) *Carcinoma of appendix*. Mr. McADAM ECCLES remarked on the interest of these cases, occurring so often in quite young subjects. This specimen was from a girl of 13, symptoms of chronic appendicitis were present, and when he removed the organ—a short, stumpy appendix—it showed microscopically a typical carcinoma. These cases generally recovered, and did not have any recurrence in glands or viscera. (4) *Tuberculous pneumonia*. (5) *Intussusception of ileum* into caecum discovered *post mortem* in a boy aged 1 year 10 months. There was no peritonitis. The child was brought to hospital without any definite history of abdominal symptoms, and while being examined died. The child was well developed, and in other respects healthy, and the abdomen when examined was flaccid. (6) *Interstitial nephritis*. (7) *Melanotic sarcoma* of spleen and liver. (8) *Shirt stud obstructing larynx*. Dr. H. J. F. SIMSON exhibited a *Fibroid tumour of the uterus undergoing red degeneration* and necessiting hysterectomy at about four and a half months, and several other specimens of tumours of the uterus and cervix. Mr. S. G. MACDONALD: *Closed renal tuberculosis*, showing the upper portion of kidney completely shut off from the ureter so that the urine was sterile and free from pus or tubercle bacilli. Dr. A. K. THOMSON took the opportunity afforded by this meeting of introducing Willard, "*The Man who Grows*." Willard claimed to be able to increase his height at will by 7½ in., to increase the length of his arms from 4 to 15 in., and to elongate the neck by 2 in. without any dislocation or separation of joints. He declared that he could never be quite sure how much he would accomplish at a given demonstration, and that the 7½ in. referred to above was his record. He then proceeded to demonstrate his power of elongating while in the standing position, and although he did not attain the figures quoted the exhibition was remarkable and interesting. On submitting himself to examination he appeared to possess, within physiological limits, an abnormal degree of spinal mobility and an unusual control over muscles rarely voluntarily exercised.

LIVERPOOL MEDICAL INSTITUTION.

AT a meeting on March 6th, Mr. ROBERT JONES (President) in the chair, Professor SCHÄFER gave an address on the *Physiology of milk secretion*. The mammary glands gave a secretion in which the chief organic constituents were all formed in its cells, while the salts were formed in the blood. The flow of secretion was not determined by nerve excitation. The secreting cells did not break down to form part of the secretion, but their free ends broke so as to liberate the milk constituents formed within them. Transplantation of the gland and its subsequent enlargement during pregnancy and secretion after parturition proved that nerve influences were not necessary. The secretion resembled that of the kidneys, which depended on the amount and quality of the blood circulating through its vessels, being very sensitive to an excess of those substances which, among others, formed its chief normal constituents, namely, water, urea, and common salt. The posterior lobe of the pituitary body contained a hormone which stimulated the renal and also the mammary secretion. Professor Schäfer had investigated the effect of the pituitary and several other extracts, working with Dr. Mackenzie. Fine cannulae were inserted into the incised nipples of lactating cats, and the milk was allowed to fall upon an electrical recorder. Several of these graphic records were shown by lantern screen. The effect of the injection of pituitary extract was one of the most striking experiments in physiology. The milk at first poured from the gland in a continuous stream, the flow gradually diminished, ceasing after ten to fifteen minutes. To produce a second effect it was necessary to wait for some time. Each successive dose administered at thirty minutes' interval gave a secretion well marked but diminishing in amount. The hormone was present in the pituitary body of all vertebrates examined—birds, fishes, amphibians, and reptiles, as well as mammals. Extract of corpus luteum gave a well marked galactagogue action, differing from the action of pituitary extract in not being accompanied by a rise in blood pressure. Extracts of uterus after parturition were galactagogue. Extracts of placenta and of fetus produced an inhibitory action on milk secretion. The effect of the pituitary hormones was to empty the gland as though alveoli and ducts had undergone contraction, squeezing out the milk as from a contractile sponge, yet muscle fibres had not been observed in the walls of the alveoli. Professor Schäfer exhibited slides demonstrating the electrical changes which were only found during secretion. Experiments had failed to show that the quality of the milk secreted under the influence of hormone stimuli differed from the ordinary secretion. The total yield of milk had not been influenced by the administration of pituitary extract to cows, though marked stimulation had been noted immediately after its injection. In human beings, experiment had given a large temporary increase in the secretion, but the patient had to wait a longer period before again giving the breast. The general

conclusions arrived at were: (1) The flow of the mammary secretion is induced as the result of galactagogue hormones circulating in the blood. Such hormones are produced in largest quantity in the posterior lobe of the pituitary body, but are also yielded by the corpus luteum, by the involuting uterus, by the mammary gland substance itself and perhaps by other organs. (2) Hormones which are formed during pregnancy in the tissues of the fetus and in the placenta possess the property of inhibiting the activity of the galactagogue hormones. (3) There is no distinct evidence that the mammary secretion is directly influenced by the nervous system, for it is carried on in a normal manner after the severance of all the nerves passing to the organ. Since nervous influences do undoubtedly affect the milk, this can only be either by their action on the general nutrition or by their effect on the production and pouring out of galactagogue hormones. (4) Drugs such as pilocarpine and atropine, which probably influence the secretion of glands mainly if not entirely through nerve endings, have little or no direct influence on the secretion of the mammary gland. A cordial vote of thanks to Professor Schäfer was proposed by Professor A. M. PATERSON and seconded by Mr. F. T. PAUL. Professor DE BURGH BIRCH, Professor B. MOORE, and Dr. KENNETH MACKENZIE also spoke, and Professor SCHÄFER replied.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

AT a meeting on March 7th, Mr. FREELAND FERGUS, President, in the chair, Dr. J. H. NICOLL, speaking of *The avoidance of unsightly scar deformities in the operative treatment of cervical adenitis*, referred to the growth of an opinion among surgeons that complete removal of all the glands from a given region of the neck was not attainable, that by even the most mutilating incisions and dissections only a number of the more obviously affected glands could be removed, and that the same results could be obtained by less disfiguring methods. These were: (1) Evacuation of the fluid contents of a "softened" gland by a cannula or aspirator thrust through the skin and subcutaneous tissue—not a good method. (2) Evacuation by means of a small Volkmann's spoon introduced through a puncture made in one of the natural folds of the neck by a fine knife. Both these methods aimed only at removal of the gland substance from within the capsule, and were limited to cases in which one or two small glands had softened. The aim of the following two methods was the removal of the capsules with the glands, and by them in some cases large masses of glands could be "tunnelled" out. (3) The method of Treves of Margate, in which the incision was placed in the first transverse crease above the clavicle (in girls an inch higher), a tunnel made between the incision and the mass of glands, and the mass separated by digital enucleation. (4) The method of Dollinger of Budapest, in which the incision was made along the lower margin of the scalp in a line downwards and backwards from the mastoid process, and the glands similarly "tunnelled" out. The last two methods were comparatively easy in young children, but in adults were often tedious and difficult. Dr. W. R. JACK reviewed recent literature on the subject of *Vaccine-therapy in the treatment of gonococcal vulvo-vaginitis*, and stated his experience of this method in the treatment of six cases among children. In two cases, one of which was treated by an autogenous and one by a heterogeneous vaccine, a clinical cure was reached after two and a half months' treatment. A third case, treated by autogenous vaccine, was free from symptoms after over three months. In the other three cases, two of which were treated by a polyvalent and one by an autogenous vaccine, the condition remained uncured after two months, five months, and over five months respectively. While these results did not appear very encouraging, it was to be noted that in all the cases a comparatively speedy improvement was attained, the irritation and discharge being much lessened, though in the unsuccessful cases it seemed to be impossible to get rid of this remainder whatever dose was used. Mr. GRANT ANDREW, speaking of *The operation for acute appendicitis—primary closure of the abdominal wound*, based his remarks on the records of 85 cases operated on by him between June, 1910, and February, 1913. In the greater proportion of the cases the appendix was gangrenous in whole or part and unprotected by adhesions, and in one-third of the cases it had perforated. In a smaller proportion a localized abscess was present, completely shut off and usually very foul smelling. In almost every case the appendix was removed and the stump dusted with iodoform or treated with iodine or iodoform emulsion, and in over half the cases *Bacillus coli* vaccine was given subcutaneously. In 80 cases the wound was primarily closed without drainage, and 57 of these healed primarily. In 27 there was some infection of the wound, and in 2 cases the wound was restitched. In no case was a drainage tube necessary for the wound alone. There were 7 deaths. The list included no simple, catarrhal, or "quiescent" case, otherwise the mortality would have been under 3 per cent. The results showed that, provided the cause were removed and the caecal opening thoroughly closed, drainage either by tube or packing could be dispensed with, and primary union obtained with less risk, even under the worst possible intra-abdominal conditions.

MIDLAND OBSTETRICAL AND GYNAECOLOGICAL SOCIETY.

AT a meeting at Leicester, on March 4th, Dr. MALINS, President, in the chair, Mr. J. FURNEAUX JORDAN showed a uterus containing a *Myoma the seat of necrobiotic degeneration*. The tumour had complicated pregnancy, and he had performed hysterectomy a few weeks after labour. The PRESIDENT remarked upon the small size of the uterine body. Apparently involution must have been extremely rapid. Mr. CHRISTOPHER MARTIN asked for information as to the pathology of red degeneration in fibroids. Personally he had never seen the condition apart from pregnancy. In Mr. Jordan's case, it was remarkable that the tumour had not been the cause of obstructed labour. It showed how easily a large mass will slip up out of the pelvis. Dr. PURSLOW recalled the similar specimen that he had shown before the society, where the neoplasm was cervical in position. Dr. CLARE asked if pain had been a feature of Mr. Jordan's case. Mr. MARRIOTT agreed that red degeneration was usually associated with pregnancy, but he had removed a nulliparous uterus with a very degenerated fibroid of this nature. Mr. WHITEHOUSE believed, on his own experience, that many cases of red degeneration had no relation at all to pregnancy. Mr. FURNEAUX JORDAN, in reply, stated that pain was certainly a feature of his case. In fact, a few weeks before term discomfort was so marked that the patient thought that labour had commenced. The apparent extreme involution of the uterus was due to the preservatives employed. Dr. N. J. SPRIGGS showed a new *Ligaturing forceps for pelvic surgery*. He had designed it for the easy and quick application of ligatures in inaccessible situations. It was a combination of a haemostatic forceps, designed to carry a ligature loosely knotted, with a sliding arrangement for pushing off and tightening the knot. It was rather complicated, but not more so than a tonsil guillotine, and it readily took to pieces for cleaning purposes. It had not yet been manufactured wholesale, but inquiries should be addressed to Messrs. Weiss and Son, Oxford Street, London, W. The PRESIDENT remarked upon the ingenuity of the instrument, and thought that it might certainly be useful in applying ligatures in some difficult situations. Mr. BOND said that he always had some little diffidence in employing very complicated instruments. For ligaturing superficial vessels it would be easier to use the ordinary method, but as regards deep vessels Dr. Spriggs's instrument might be of value. Dr. H. J. HICKS read a short communication upon *Localizing septic peritonitis of puerperal origin*. In the treatment of this condition he thought that simple drainage through Douglas's pouch should always be adopted when the local area of infection was within reach. Any attempt at radical removal of a pyosalpinx or an infected ovary was certain to be followed by a severe general septic condition which might be quickly fatal. The parametrium was nearly always also infected, and although the broad ligaments might not contain pus, the lymphatics were in such a state that they would pick up bacteria readily, if opened in the course of removal of the tubes or ovaries. Where simple drainage was not possible it was best to wait. The patient must be watched carefully

for any signs of extension of the infection. The longer the surgeon waited, the less virulent would be the organisms, and, further, by waiting, the natural protection against a general invasion had time to develop. In all cases Fowler's position should be adopted. The complications to be feared, if a radical operation had been undertaken, were not the ordinary complications which were familiar to all surgeons engaged in abdominal work, but septicaemia in its worst form. The PRESIDENT expressed his surprise at one remark in Dr. Hicks's paper—namely, that the "streptococcus did not cause as much permanent damage to structures as did the gonococcus." He was of the opinion that gonococcal infections as a rule produced a less severe degree of inflammation than did the streptococcus. Mr. BECKWITH WHITEHOUSE was in entire agreement with the conclusions enunciated by the author, especially as to the importance of simple drainage from below, and the value of waiting until the acute symptoms had subsided. The observance of these two facts undoubtedly saved the lives of many patients who would be lost if more radical measures were employed. With regard to the virulence of the infection, the type of streptococcus probably had some influence in this direction. Mr. Furneaux Jordan had recently shown that the streptococcus which occurs in puerperal infections was frequently of a specific type, and he had named it the *Streptococcus puerperalis*. Mr. FURNEAUX JORDAN said that none of the cases brought forward by Dr. Hicks could conveniently be drained by the abdomen. Localized septic peritonitis may certainly be dealt with by the vaginal route, but if septic tubes and ovaries were to be treated, then he thought that an abdominal incision was preferable. As a rule a definite organism was present in these cases, and if possible an autogenous vaccine should be administered, but the progress of the symptoms was the index for treatment. Mr. CECIL MARRIOTT gave details of a case of *Pyosalpinx and abscess of the broad ligament* occurring twenty-one days after labour. He had attempted to reach the same extraperitoneally, but had found it necessary to perform laparotomy and drain through the abdomen. The patient recovered. Dr. PURSLOW asked what material Dr. Hicks used for ligatures and sutures in this type of case. Dr. HICKS, in reply, said that he always employed catgut sutures where the suspicion of sepsis was present. He was still firmly convinced that the best method of treating a puerperal pyosalpinx was that of simple drainage. The infected tube was frequently high up, but nevertheless the pus could be reached by this route and it was a far safer procedure than that of laparotomy and removal of the diseased appendage, at any rate during the acute stage. Mr. CECIL MARRIOTT read notes on cases of *Hysteropexy*. The operation that he preferred was a modified vaginal fixation, and this he had successfully employed for several years. Mr. CHRISTOPHER MARTIN had tried most of the various "new" operations that had been devised for the cure of retrodisplacements of the uterus, but had come to the conclusion that none were so efficient as the old "ventral fixation." If the sutures were placed below the level of insertion of the round ligament, then no fear need be entertained if pregnancy should occur. Abortion under these circumstances did not take place. In the case of complete uterine prolapse, he thought that there was no better treatment than by Simpson's "shelf pessary." Mr. BECKWITH WHITEHOUSE said that during the last two years the method of fixation that he had adopted had been the "sling" operation of Clarence Webster. It was necessary to use silk sutures and also to suture each round ligament to the uterine wall. Otherwise intestinal obstruction might occur from the passage of a coil of small intestine between the uterus and the loop formed by the round ligaments. Out of the last 30 cases treated by this operation there had been one recurrence. One patient was now three months pregnant and the pregnancy was pursuing a normal course. Dr. PURSLOW remarked, with regard to the "shelf" pessary advocated by Mr. Martin, that upon a certain occasion he had had great difficulty in removing one of these instruments from the vagina. It had, in fact, ulcerated completely through the vaginal wall and part was lying in the bladder. The PRESIDENT observed that the proper *use* and the *abuse* of a pessary were quite different things. Dr. Purslow's case was an example of gross abuse of a pessary on the part of a patient, and could not be used as an argument against the proper value of the instrument. Dr. N. J. SPRIGGS read a paper upon *Congenital intestinal occlusion*, being an account of 24 unpublished cases, with remarks based thereon and upon the literature of the subject. This paper will appear in the *Transactions*. The PRESIDENT observed that the amount of work entailed in Dr. Spriggs's investigation into this little known subject must have been immense, and he heartily thanked the author for bringing it forward. Mr. BOND referred to a patient that had come under his observation upon whom a colotomy had been performed thirty years previously for occlusion of the large bowel. The lumen of the gut below the colotomy was then no more than the size of a lead pencil.

HUNTERIAN SOCIETY.

AT a meeting on March 12th, Dr. ANDREW CURRIE, Vice-President, in the chair, Dr. H. LETHEBY TIDY read a communication on *Myeloblastic leukaemia*, illustrated by microscopic slides. Dr. F. HOWARD HUMPHRIS, in a paper on *Non-infective inflammation*, and modern electrotherapeutic measures in its treatment, pointed out that stasis in simple inflammation was a bar to complete restitution, and that the indication in almost any stage of inflammatory process was the resolution of the local condition of infiltration; and that when a suitable electric current is used infiltration is dissipated, circulation is restored, and a healthy physiological activity displaces the former pathological torpor. Dr. Humphris pointed out that that form of electricity which stood pre-eminent in producing mechanical effects was static electricity. When administered it induced successive contractions and relaxations, expressing fluid and semi-fluid débris on the mass of tissue involved. Several diseases were instanced, such as prostatitis, synovitis, neuritis, lumbago, and other forms of fibrositis, and the argument was made from the pathology of these conditions, and the mechanical action of the current, that with the removal of the stasis comes the relief of the disease, of which the stasis was either the cause or complicating concomitant. Mr. E. ROCK CARLING read a paper on *Some injuries of the fingers*, showing illustrative radiograms.

UNITED SERVICES MEDICAL SOCIETY.

AT a meeting, held on March 12th, Fleet Surgeon P. W. BASSETT-SMITH, C.B., R.N., in the chair, a paper, entitled *Salvarsan in the navy*, was read by Fleet Surgeon LANCELOT KILROY, who described a rapid method which he used at the Royal Naval Hospital, Plymouth, of preparing and administering the drug. By means of tabulated statements, and also by drawings and photographs, Fleet Surgeon Kilroy produced evidence of the beneficial effect of salvarsan in a large number of cases of syphilis which had come under his care. Cases of syphilis in whom the Wassermann reaction was positive, though previously treated with salvarsan and free from all active symptoms, should receive yet more salvarsan treatment as the best means of avoiding a clinical relapse. According to his experience, cases once treated by salvarsan did not fail to respond favourably to the drug when employed on subsequent occasions. Fleet Surgeon Kilroy recommended three different schemes of treatment suited, in his opinion, to primary, secondary, and tertiary cases, all of these including the administration of salvarsan and mercury, and in the cases of tertiary disease, of potassium iodide also. These methods had, in his hands, been followed by many beneficial and by no ill results. In the subsequent discussion, Major W. L. HARRISON, R.A.M.C., Staff Surgeon SCOTT, R.N., and Dr. DAVIS (Dreadnought Hospital, Greenwich), all of whom had had considerable experience of salvarsan, took part. The meeting terminated with a unanimous vote of thanks to Fleet Surgeon Kilroy for an interesting and instructive paper.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.

AT a meeting on March 5th, the President, Mr. W. G. LAWS, in the chair, Dr. H. MICHIE read a memoir on *The treatment of prolapsus uteri*. He first considered the

anatomy and structure of the uterus, and explained that there were no true ligaments, but that the uterus was held up by folds of peritoneum and the round ligaments. Prolapse of the uterus was essentially a hernia, and occurred most frequently in advancing age, and after the menopause. Hard work, coughs, or strain were contributory factors. As a prophylactic, he advocated moderate exercise during pregnancy, patience during labour, and a not too early return to hard work after confinement. Hodge's pessaries or rubber rings sometimes were sufficient. Alexander-Adam's operation of ventral fixation generally cured the prolapse, but often complicated succeeding pregnancies; it was better suited for cases of retroflexion. Dr. Michie had lately devised the following operation: The abdomen was opened in the middle line by means of a small incision, the round ligaments on each side were isolated, and stout catgut was passed under the broad ligaments. These were drawn through the conjoint tendon and rectus muscle, and were stitched over the aponeurosis, just immediately below the skin. He had performed this operation twenty-five times, and all the patients had been relieved; there had been no complications in four cases of subsequent pregnancies; two patients who had incontinence of urine were relieved of this trouble.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.

AT the annual pathological meeting, on March 14th, the President, Dr. DOBSON, in the chair, Dr. MYER COPLANS read a preliminary note on the *Properties of finely divided asbestos* with reference to the adsorption of bacterial toxins, antitoxins, snake poison, complement and amboceptor of a haemolytic system, specific agglutinin, diastase, and certain proteins and pigments, from watery solutions, and on the degelling phenomena exhibited towards watery agar, gelatine, and isinglass. The inhibitory action of watery agar when admixed with tetanotoxin was noted. A method of separating toxins from watery solutions by means of open gravity filtration through a layer of hydrate of alumina, its action being enhanced by the use of asbestos fibre as a binding substance, was shown. This latter experiment, when repeated with finely divided asbestos unsupported by hydrate, led to the discovery of the adsorbent properties of asbestos as detailed above. Asbestos dressings in surgical cases, especially in septic conditions, were advocated. Dr. MYER COPLANS and Mr. W. GIBBS LLOYD read a preliminary note on the *Adsorbent and catalytic properties of finely divided asbestos* as exhibited towards certain physiological substances—namely, starches, sugars, ferments, the various proteins, alkaloids, and hormones. Mr. W. C. LYONS read a paper on the various forms of "*Proteose-free*" *tuberculin*, with special reference to the enhanced diagnostic and therapeutic value of Koch's old tuberculin rendered proteose-free by treatment with ethyl alcohol—a process which was of special service in differentiating and isolating the specific from the non-specific toxins, as shown by a series of 262 cases of pulmonary and other forms of tuberculosis. The exhibits included:—Dr. COPLANS: (*a*) A portable apparatus for directly indicating electro-conductivity of body and other fluids; (*b*) a portable apparatus to be used in conjunction with the previous appliance for analysis of gases in air, carbon-dioxide being estimated by means of the *fall* in conductivity of a solution of baryta or lime water after absorption of the gas, carbon-monoxide, and the unsaturated olefines usually present in coal gas being estimated from the *increase* of conductivity of a solution of ammoniacal cuprous chloride following absorption of these gases. Dr. M. J. STEWART: (1) A *Fetus acardiacus amorphus*, the twin of a healthy male infant. It had neither head nor limbs, the umbilical cord was centrally situated on the ventral aspect, and a radiograph showed the presence of a spinal column, a rudimentary pelvis, and seven ribs on each side; a small triangular plate resembling a basi-sphenoid alone represented the cranium; the kidneys, ureters, testes, liver, and an inch of bowel were present, but the heart and lungs were absent; (2) *Teratoma of the testis* and *Cancer of the breast with squamous metaplasia*. Dr. J. KAY JAMIESON and Dr. J. C. BRASH demonstrated a dissection illustrating the distribution of the *Auriculo-ventricular bundle*.

Reviews.

RECTAL SURGERY.

SIX years have elapsed since the first edition of the late Sir FREDERICK WALLIS's book on the *Surgery of the Rectum*[1] was published. The second edition has been brought quite up to date, and has been presented in a practical form likely to appeal to both surgeons and practitioners. The last proofs of this work were handed in by the author just before his death; the edition was then carried through the press by a friend. The book has been largely rewritten, the print is enlarged, and the number of pages has been increased from 165 to 351. Six new chapters have been added. In the first chapter an account of the anatomy of the sigmoid and rectum is given; in the second the method of examination of patients is described, and when and how the sigmoidoscope should be used is discussed. Chapters III, IV, and V deal with the acute, subacute, and ulcerative inflammations of the colon, sigmoid, and rectum. These chapters greatly increase the importance of the book and give it a wider scope. They contain a good account of the comparatively recent pathology and treatment of these conditions without entering into points of controversy. Special attention is drawn to the treatment of intractable ulcerations by means of cataphoresis from zinc ionization. Chapter VI is devoted to venereal diseases of the rectum and anus, and Chapter VII to diseases of the perianal region. The last chapter deals with the rectal diseases of children; it includes the common developmental defects, and gives a short account of the development of the rectum and anus. The other chapters have been considerably modified and brought up to date, especially as regards treatment, accounts of many cases have been added to them, and the ease with which the book may be read is thus increased. The illustrations have been improved, and with the additions made they now number 129; they are clear and instructive.

The author ascribes the cause of intractable pruritus ani in over 90 per cent. of cases to ulceration between the sphincters; possibly this is a high percentage. A practical account is given of the operations for excision of the rectum without going into too much detail. The book is well arranged and written, and should prove of great service to practitioners.

MALE DISEASES.

IN his *Male Diseases in General Practice*[2] Mr. CORNER discloses an ardour and enthusiasm which lead him not only to the description of no less than ten operations for imperfect descent of the testicle—many of them with names of portentous length, such as "orchidocoelioplasty"—but even to the elevation of his subject into the entity "andrology." At the same time, some of his words upon matters sexual can only be described as grandpaternal; but there is a hint in his preface that his book has been written in anticipation of a demand for such a work from women practitioners, and possibly this is the reason. It cannot explain the occurrence of such a sentence as this: "A 'pyoma' or pus tumour is an abscess"; or, again, "It is a very common assumption that just as we are born so do we remain throughout life. A minute's thought will show the fallacy of this"; nor is it quite clear from the text what is to be gained by teaching the sufferer from spermatorrhoea to make microscopic preparations of the discharges; but these are details. The best part of the book is that devoted to hydrocele, misplacement, and imperfect descent of the testicle, torsion of the testicle, and varicocele, of which the author has not only had an extensive experience but has also examined statistically large numbers of records, particularly as to late results of operations. He might perhaps have made it clearer that many so-called encysted hydroceles, though quite translucent, prove to contain spermatozoa when their clear contents are centrifuged. In expressing the opinion that

[1] *The Surgery of the Rectum for Practitioners.* By Sir Frederick Wallis, M.B., B.C.Cantab., F.R.C.S. Oxford Medical Publications. London: Henry Frowde, and Hodder and Stoughton. 1912. (Demy 8vo, pp. 370; figs. 129. 15s. net.)

[2] *Male Diseases in General Practice.* By E. M. Corner, M.A., M.C., F.R.C.S. Oxford Medical Publications. London: Frowde, and Hodder and Stoughton. 1912. (Demy 8vo, pp. 470; illustrations 162. 15s.)

many varicocele operations are unnecessary it would have been worth while to mention that varicoceles which have never given the slightest trouble in temperate climates sometimes do so when the patient goes to live in the tropics. There is a great deal of valuable information in the book, which has the not too common characteristic of seeming to owe very little to other textbooks and reflecting the real experience of the author.

The ninth edition of WHITE and MARTIN'S *Genito-Urinary Surgery and Venereal Diseases*[3] is a bulky volume of over eleven hundred pages. Obviously it is appreciated; and yet, in spite of the large number of reissues, it is not a satisfying book. With the proportions of a book of reference it does not fulfil the promise of its appearance. The whole of the male genital organs, the urinary system, kidney, ureter, bladder, male and female urethra, and venereal diseases of both sexes are very fully dealt with; there are descriptions of cystoscopes, cystoscopy, the Wassermann reaction, the detection of spirochaetes, the investigation of renal function, and so on, with very little reference to proprietary drugs, and a large number of prescriptions that date from the time when the use of sound pharmacopoeial preparations was better understood than it is to-day. There is, of course, a section devoted to sexual phenomena of the pathological order, but it will do no more harm than turning the curious to a perusal of Krafft-Ebing. There seem to be few errors in matters of fact; it is of small moment, for example, that the pyrexia which so often accompanies syphilis of the liver is not mentioned. It is more to the point that there are numerous tables for differential diagnosis, and that the information is made accessible by a fairly good index.

We have received for review Part XXX of the *Nouveau traité de chirurgie*,[4] published under the direction of MM. A. LE DENTU and PIERRE DELBET. It deals with the diseases of the bladder and the penis, and is written by LEGUÉU and MICHON. The volume contains over 300 pages, and abounds in illustrations which adequately illuminate the text. How the publishers can publish such a volume at the price of 6 francs is difficult to understand. The text is admirably written, and sets forth methodically yet succinctly all that may be said to be known on the subject. The authors have wisely left on one side all debatable or hypothetical points and have confined themselves to facts. If we were to select one chapter beyond all others for praise we should choose Chapter VIII, on the functional disorders of the bladder, which is written in masterly fashion, and could have been written by none other than a Frenchman. The only criticism that we could offer on this work is that the references to the literature are chiefly to papers that appeared before 1900. Apart from this we can confidently recommend this work to every one interested in the subject.

BIOLOGY.

PROFESSOR ARTHUR DENDY'S *Outlines of Evolutionary Biology*[5] is a book which is likely to be welcomed by a large number of readers. It fills a gap which has long been waiting to be filled, and the author is to be congratulated upon the success he has achieved by this work. It is well and lucidly written. Being, as it is, free from all but the most imperative technicalities, it should prove of value to all who desire to obtain a clear conception of the current views of biological thought, and not merely to students of biology in the strict sense of the term. The scope of the book may, perhaps, be best indicated by enumerating the titles of the five parts under which the twenty-seven chapters are grouped. These titles are: The structure and functions of organisms, including the cell theory; Evolution of sex; Variation and heredity; Theory and evidence of evolution and adaptation; and Factors of organic evolution. With a programme of such magnitude it speaks well for the author's powers of concise expression when it is said that all these questions are adequately dealt with in the space of 427 pages. Though many of the subjects are still highly controversial, the author places the facts before the reader—with perhaps one or two exceptions—in a very fair and impartial manner. In discussing the phenomena of convergence, of which many interesting examples are cited, attention is rightly drawn to the pitfalls into which the observed phenomena may lead the unwary. As an instance of such, Professor Dendy refers to the fact that more than one observer has been led to "conclude that vertebrates are descended from arthropod ancestors, a conclusion which is by no means justified by the facts." A less debatable pitfall might have been cited as an example, for though the bulk of zoologists are opposed to such a theory, its supporters, though few, are by no means undistinguished, and are not all likely to have fallen into an obvious pitfall. The statement that the conclusion is "by no means" justified by the facts is, perhaps, unnecessarily strong.

Professor Dendy is clearly a believer in the inheritance of acquired characters. It is a problem of prime importance, particularly in the discussion of many of the pressing problems of eugenics. There has been a tendency for some years to regard the non-inheritance of acquired characters as proved, to accept Weismann's theory of the germ plasm as giving the final death-blow. The pendulum is beginning to swing backwards. It is to be hoped that before long some more definite conclusions may be reached upon this vexed question. A point which enhances the value of this book is the fact that the theories dealt with are applied to the vegetable as well as the animal world, and the examples given are almost as frequently botanical as zoological. There are many and good illustrations, and the index is reliable. The author is distinctly to be congratulated.

Professor TIMIRIAZEFF set before himself the very difficult task of giving a popular exposition of the physiology of plants, which has culminated in the publication of a volume entitled *The Life of the Plant*.[6] The subject matter was originally delivered as a course of lectures during the winter of 1876 in Moscow and in a lecture given in St. Petersburg in 1875. These lectures were published in book form which has now reached a seventh edition in Russia. It is this edition that has been translated into English by Miss ANNA CHÉRÉMÉTEFF. That Professor Timiriazeff has achieved his aim the fact that the book has run into so many editions is evidence. The difficulty of writing a really sound and yet popular account of any science is always great, but the difficulty is considerably greater when the science is young and very progressive, as is the case with vegetable physiology. In the *Life of the Plant* the reader will find a clear and accurate account of the present state of our knowledge of the metabolism of plants, the experimental evidence being described in a plain and simple manner. As far as it is possible to judge, the translation has been well done; at any rate the English version reads well.

HEREDITY AND SOCIETY.

THE general theme of Mr. and Mrs. WHETHAM'S book entitled *Heredity and Society*[7] is much the same as that which runs through their previous writings, notably *The Family and the Nation*. Indeed a certain proportion of the subject matter contained in the two books appears to be the same, though in a somewhat different guise. Nevertheless it makes interesting reading, and there is so much sound common sense in many of the conclusions that they bear repetition, and it will be well if the book is widely read.

It is, of course, written from the point of view of eugenics, and the first three chapters are consequently

[3] *Genito-Urinary Surgery and Venereal Diseases.* By J. William White, M.D., and Edward Martin, M.D. Ninth edition. Philadelphia and London: J. B. Lippincott Company. (Roy. 8vo, pp. 1116; illustrations 300; plates 14. 21s. net.)

[4] *Nouveau traité de chirurgie.* No. 30. Publié sous la direction de A. le Dentu et Pierre Delbet. Maladies de la Vessie et du Pénis. Par F. Legueu et E. Michon. Paris: J. B. Baillière et Fils. 1912. (Sup. roy. 8vo, pp. 324; figs. 90. Fr. 6.)

[5] *Outlines of Evolutionary Biology.* By Arthur Dendy, D.Sc., F.R.S., Professor of Zoology, King's College, University of London. London: Constable and Co., Ltd. 1912. (Med. 8vo. pp. 468; figs. 188. 12s. 6d. net.)

[6] *The Life of the Plant.* By C. A. Timiriazeff, Professor Emeritus, Moscow University. Translated from the revised and corrected seventh Russian edition by Miss Anna Chéréméteff. London: Longmans, Green and Co. 1912. (Med. 8vo, pp. 1-370; 83 figs. 7s. 6d. net.)

[7] *Heredity and Society.* By William Cecil Dampier Whetham, M.A., F.R.S., and Catherine Durning Whetham. London: Longmans, Green, and Co. 1912. (Roy. 8vo, pp, 198. 6s. net.)

devoted to a brief summary of the more recent work on heredity, particularly that by the Mendelian school. The value of this work when looked at from the sociological standpoint is very great. The knowledge gained of the inheritability of such conditions as deaf-mutism, amentia and dementia, and of those extremely interesting cases of sex-limited diseases such as night blindness, is of far-reaching importance. A chapter is devoted to "Birth-rate," and once more attention is drawn to the disproportionate rate of increase between the desirable and undesirable sections of the community, leading, as it inevitably must, to a marked lowering of the average efficiency of the race. It might be supposed that the conclusions to be drawn from such facts as Mr. and Mrs. Whetham and others have brought forward on this and previous occasions are so self-evident as to require no reiteration; but the attitude of opposition on the part of some to the recent bill dealing with the mentally defective, and indeed the very slender pretext upon which those in authority "shelved" that bill, proves how little real hold such conclusions have taken. Hence the necessity for constant repetition, in the hope that some day light may penetrate into those darkened recesses where callousness and indifference to the important problems of race betterment at present seem to reign supreme.

The two chapters on the past and present position of women are interesting, particularly at the present moment. With much that is written no doubt the more stalwart champions of women's suffrage will disagree. In the minds of some, to become a wife is sufficiently derogatory, to become a mother the greatest of calamities. This is not the view taken by the authors. Attention is very rightly drawn to the large proportion of the more highly-gifted women who are either unmarried or childless, and thus to the loss of a great national asset in the future. It is a problem of great moment to determine whether the mere fact of the greater strain on the nervous system involved by the so-called higher education of women is in itself the cause of the infertility, or whether it is due to the attitude of mind which encourages the belief that to be unmarried, or if married to be childless, are but degrees of evidence of emancipation and of sex equality.

A comparative study of the birth-rates in different sections of the community tends to the conclusion that there is some voluntary restriction of families, which, however, does not appear to occur in the cases of ministers of religion. This affords the text for an interesting chapter on the biological influence of religion. Education and politics are both dealt with in relation to heredity and to eugenics; and, lastly, there is a chapter entitled, "The Purpose of Life." In this, more philosophic and transcendental problems are touched upon. If creative evolution be intelligible, the conclusion is reached that this evolution has tended through countless æons "to the production of the largest numbers of mankind of the highest mental and physical types." Behind all, there remains the deeper problems of the very existence of life and matter. Two possibilities seem open: Either a "blind inchoate stream of rudimentary consciousness running through the structure of the universe"; or, "the existence of a more definite consciousness, pervading and yet transcending all things." On either view the development of human personalities becomes of transcendent importance. We cannot follow the authors' discussion of questions bearing on these and cognate matters, but it is quite one of the most interesting chapters in a book which is itself full of interest.

NOTES ON BOOKS.

Astonishing Anatomy[1] is very good fun. On the cover, which does not correspond with the title-page—in fact, nothing in the volume corresponds with anything serious—the illustrations are described as "wood cuts, abrasions, finger prints, and thumbnail sketches," but their genus is better indicated by the statement that they are in the same vein of humour as was first worked by the author of *Wisdom While You Wait* and other skits of the like nature. Perhaps the best of them is the "simple diagram" of the fetal circulation in many colours which when held another way is seen to be something more familiar to the average Londoner. But nothing in the book is what it seems, or, at any rate, what the author says it is. There is a *réclame* in the most approved style, of pills made, it is said, entirely by hand, for "see the finger mark on every pill," a chapter on free medical advice in the manner of the Sunday paper, and an interview explaining how to keep a hospital for a second, for which the author, very properly, apologizes. These chapters, it may be objected, have nothing to do with anatomy—nor have most of the others. The author, whose portrait we do not recognize, shows by his title-page that he has some acquaintance with German literature, and that, however eccentric his views on anatomy, he has some knowledge of the proceedings of the Anatomical Association of Great Britain, Ireland, "and especially Scotland."

The edition of *Truth Cautionary List*[2] for 1913 was issued recently. The list is a recapitulation of advice and information respecting individuals or combinations of individuals given from time to time in the columns of *Truth*. It is not designed to pillory persons as dangerous characters, but to inculcate caution in parting with money for purposes of one kind or another. That there is great need for such advice as is given cannot be doubted, and that the annual volume, which has now been issued for ten years, has proved of great use to the public is shown by the increasing demand for it. The information in the present issue is brought down to December, 1912. Notices are classified under various heads, such as religion and philanthropy, begging letter writers, medical quackery, bucket shops, and so on.

Under the title of *Coprostasis*,[3] Sir JAMES SAWYER has published a reprint of a few chapters taken from his book *Contributions to Practical Medicine*. Constipation is a frequent and troublesome accompaniment of many disorders of health, but it is best considered in its relationship to the condition upon which it depends, though in the minds of some who suffer from it it becomes of itself a serious disease. The author has done well to give his professional brethren the advantage of his experience, though we could wish he had chosen a subject offering a field of greater breadth of investigation, and one affording a wider scope for the exercise of the originality he is known to possess. Is he quite sure that if defaecation be put off, "the distended rectum empties itself, if it can, backwards into the sigmoid flexure, and the returned faeces are held up there if possible"? Among details of treatment suitable daily exercises are suggested, "such as, for example, running upstairs by taking two steps of the stair at each stride, which is an excellent exercise for giving a fillip to the sluggish parts." It is also recommended "to sleep for the former portion of the night upon the right side, and for the later portion upon the left side." These are counsels of perfection which may not have occurred to every practitioner of the art of medicine, but difficulties in their fulfilment, as well as doubts regarding their universal applicability, will occur to many readers. The hints on treatment are valuable, but there is little reference to the newer medicaments, some of which have proved so successful in assisting Nature to the satisfactory re-establishment of rhythmic regularity in a normal function of the economy.

By those who are preparing for one or other of the examinations for sanitary inspectors, Mr. COWDEROY'S *Pocket Notes and Remembrancer*[4] may be found useful as a reminder of what they have already learnt. The information given is for the most part reliable, and it is set out in a form that makes reference easy. The chapter on meat inspection, which forms nearly one-fourth of the whole book, is very well put together, and contains some practical hints which should be useful, especially to those inspectors who have not had much experience in such work. A knowledge of the contents of this chapter might save an inspector from many pitfalls.

[1] *Astonishing Anatomy.* By Tingle (the rest of the title-page is too complicated to copy). London: Sir Isaac Pitman. 1913. (Cr. 8vo, pp. 88. 1s. net.)

[2] *Truth Cautionary List, 1913.* London: Truth Publishing Company, Limited. 1913. (Cr. 8vo, pp. 130. 1s. net.)

[3] *Coprostasis: Its Causes, Prevention, and Treatment.* By Sir James Sawyer, F.R.C.P. Birmingham: Cornish Bros. 1912. (Demy 8vo, pp. 74. 2s. 6d. net.)

[4] *Pocket Notes and Remembrancer for Sanitary Inspectors and all engaged in Public Health Work.* By J. T. Cowderoy. Fourth edition. London: The Sanitary Publishing Company, Limited. 1912. (Pott 8vo, pp. 135. 2s. net.)

MILK-BORNE EPIDEMICS OF SORE THROAT.

IN the early weeks of 1912 an extensive epidemic of sore throat occurred in Baltimore, and was eventually shown to be associated with the milk supply of a single dairy.

Hamburger first called attention to this outbreak in March, 1912, and a more detailed account by the same writer appeared in the *Bulletin of the Johns Hopkins Hospital* for January, 1913, together with a summary of other similar epidemics.

EPIDEMIC AT BALTIMORE.

A sudden increase in the number of cases of sore throat was noticed in the second week of February, and the epidemic was practically over by the middle of March. In association with tonsillitis there was great enlargement of the lymphatic glands in the neck, which, however, usually subsided without suppuration. Hamburger records 92 cases of illness which occurred in 35 households. The attacks appear to have been about equally frequent in children and adults. Forty-five of the cases were in children from 4 months to 15 years of age, and 47 in persons aged from 16 to 65 years. Females were attacked twice as frequently as males in this series. There were 16 deaths, 11 in children and 5 in adults. Nine of the fatal cases ended as acute peritonitis and 1 as erysipelas. Among the other clinical complications noted were otitis media and multiple arthritis, resembling acute rheumatism.

Frost, who, after the epidemic was over, investigated all the available evidence, was able to collect notes of 600 cases of sore throat, but considered that at least 2,400 cases really occurred. He found records of 26 deaths certainly due to the epidemic disease.

The evidence inculpating a single dairy was very strong. Of 35 households investigated by Hamburger, which were all supplied by this dairy (Dairy XYZ), 33 were affected by the disease and afforded 90 cases of illness. Thirty-seven other households, which were supplied by other dairies, yielded only six cases of sore throat. Of 16 fatal cases, all but 2 had been supplied with milk from Dairy XYZ.

At this dairy the milk was usually pasteurized, though the "flash" method employed was not a satisfactory one, the milk being nominally heated to 160° F. for one to three minutes. The heating of the milk was moreover entirely omitted from January 28th till about February 5th. This period coincides with the probable dates of reception of the infection in the cases which occurred in the sudden outbreak. In the latter part of the epidemic the disease appears to have been communicated directly from one patient to another. No evidence could be obtained of any disease amongst the persons employed on the farms supplying the milk nor at the dairy, and the milch cows were stated to be healthy.

EPIDEMIC AT BOSTON.

Two similar epidemics occurred in 1911–12 in the United States—one in Boston and its neighbourhood and the other in Chicago. At Boston the main epidemic began suddenly and lasted from May 11th to 28th, 1911. The recorded cases numbered 1,043. Winslow, who reported this epidemic, found that of 304 cases of tonsillitis in Brookline 198, or 65 per cent., used milk from a certain dairy, and of the 48 fatal cases 29, or 60 per cent., had taken the same milk. No disease was found amongst the cows supplying this dairy, but attacks of sore throat like those occurring in Boston had been frequent for some time in the district from which the milk was derived. The milk was not pasteurized at this dairy. The general hygienic arrangements and the bacteriological quality of the milk were very good.

EPIDEMIC AT CHICAGO.

The number of persons who suffered in the Chicago epidemic was estimated by Capps at 10,000, and the fatal cases at 200 to 300. Inflammation of the fauces, high fever, and enlargement of the cervical lymphatic glands were the common symptoms, and skin eruptions, arthritis, nephritis, bronchopneumonia, endocarditis, and fatal peritonitis were among the complications observed. In one series of 173 cases 19 deaths occurred.

Capps and Miller investigated 622 cases in respect of their milk supply, and found that of these 539, or 87 per cent., had their milk from one dairy (Dairy X). Of 19 fatal cases investigated, 15, or 79 per cent., occurred in houses which took milk from Dairy X. The houses in three widely separated districts in Chicago were canvassed to ascertain the dairy from which they obtained their milk. It was found that the morbidity in houses served by Dairy X was fourteen times as great as that in houses served by other dairies. The cases of sore throat occurring amongst hospital nurses yielded valuable information since the nurses were under close supervision. Of 153 nurses in hospitals which used X milk, 80, or 53 per cent., were attacked, whilst of 721 nurses in other hospitals only 35, or 4.8 per cent., had similar illnesses. The experience of one children's hospital was particularly instructive, for whereas a large number of the nurses who took X milk fresh from the dairy were attacked, the occupants of the 70 children's beds, who took milk which had been pasteurized after delivery, all escaped.

Investigation showed that though the milk was nominally pasteurized at the dairy, the method in use was the inefficient "flash" method, and had moreover broken down. It was proved that the temperature to which the milk was exposed had fallen to 130° F. on several days. The days on which failure in this respect occurred were December 17th, 18th, 29th, and 30th, and January 7th and 11th. The epidemic began on December 21st, was at its height on the 25th, and attained a second maximum on January 1st. Allowing for the lapse of three to seven days from the pasteurization of the milk to cover the delay before it was consumed and the incubation of the disease, the dates of failure of pasteurization corresponded very well with the dates on which the greatest numbers of fresh cases of sore throat occurred.

An excessive prevalence of sore throat was found to have existed about this time in Batavia, the district in which the X dairy had its centre and pasteurizing station. On eleven of the farms which sent milk to the X dairy, 29 cases of sore throat were known to have occurred.

On nine of these farms cases of mastitis had occurred among the cows, and this disease was said to be unusually prevalent in the district about this time. In 84 herds, consisting of 1,848 cows, which sent milk to Dairy X, 85 cases of mastitis were known to have occurred during December, 1911, and January and February, 1912.

BACTERIOLOGICAL INVESTIGATIONS.

At Baltimore a streptococcus was isolated from the throats of patients, from the ear in cases of otitis media, and from the exudate in cases of fatal peritonitis. All the strains were of similar morphology, and gave uniform cultural reactions. The micro-organism appeared in the exudate as a diplococcus with a small capsule. On blood-agar plates a slight halo of haemolysis was formed. J. D. Davis studied forty-five strains of streptococcus which he isolated from cases of illness in Chicago, and compared them with strains from cases occurring in the Boston epidemic, and from a case of mastitis in a cow. He found that the human strains were indistinguishable, and closely resembled the bovine strain. These strains of steptococcus had the same characters as those isolated at Baltimore. Davis described an additional characteristic of his strains—namely, the production of multiple non-suppurative arthritis in rabbits when very small doses were injected intravenously. Larger doses caused the death of the animals.

E. C. Rosenow also made a careful investigation of the Chicago strains, and considered them closely related to the *Streptococcus pyogenes*, but possessing distinguishing characters. The imperfections of the methods available for the differentiation and classification of the streptococci unfortunately render the identification of members of this group of micro-organisms a matter of great difficulty and uncertainty.

EPIDEMICS IN EUROPE.

Epidemics of sore throat, in which the infection has been traced to the milk supply, have been recorded from time to time in this country. In 1912 Savage[1] was able to collect data of eighteen such epidemics in Great Britain,

[1] *Milk and Public Health*, 1912.

Nine of these assumed large proportions, the cases of illness numbering from 80 to 600, and in at least three of these outbreaks deaths occurred from septic complications. In twelve or thirteen of the epidemics the infection was clearly traced to a single dairy.

Disease of the dairy cows was established in connexion with eight out of the eighteen outbreaks. On four farms cows were found to be suffering from inflammation of the udder, and on four from ulceration of the teats.

Beside the outbreaks recorded in Great Britain a large epidemic of at least 548 cases of sore throat occurred in Christiania in 1907, and was recorded by Sömme. The milk from a certain farm was indicated as the source of infection by the distribution of the disease, and a cow with suppuration of the udder was found in the herd supplying this particular dairy.

Etiology and Prevention.

The clinical features of milk-borne epidemics of sore throat are of especial interest on account of the great resemblance of the symptoms to those occurring in scarlet fever, and also because of the frequency of arthritic complications resembling acute rheumatism.

The difficult question as to the ultimate source of infection in these and similar epidemics has been thoroughly discussed by Savage. The bacteriological and experimental evidence, as far as it goes, seems to point to the infection being derived from human cases of illness. That ordinary garget or mastitis of the cow can be a source of human infection is by no means established, and such direct experimental evidence as there is tends to discredit this idea. It is, however, possible that in some instances infection may be communicated to a cow by the hands of a milker, and that inflammation of the udder may be caused in this way. Streptococci which are virulent for man may then be passed on by means of the milk to the human consumers.

In any case the lesson taught by the experience gained in these epidemics in the United States and elsewhere is that emphasized by the writers named above—namely, that besides a careful inspection of cows, milkers, and dairies, efficient pasteurization or boiling of the milk is the only means of insuring against epidemics like those which have recently occurred in America.

DIET OF THE LABOURING CLASSES.

THE Corporation of the City of Glasgow has just published an exceedingly interesting report upon the dietary conditions of the poor in the city.[1] The work was carried out in the Physiology Department of the University under the direction of Professor D. Noël Paton.

Such a report with the evidence which it contains gives much food for thought. Who is responsible for the conditions which lead to the state of poverty and bad nutrition disclosed by this report? Lies the fault with the poor themselves—is it because they are thriftless, because they lack training in cooking and in the economical spending of such income as they possess? Or is it that the actual wages which they can command are so low that it is impossible for them to purchase the actual necessities of life? Whatever the cause, the fact remains that from the evidence collected by Miss Lindsay there must be a large percentage of the people in Glasgow to-day who cannot obtain the bare minimum in the way of food.

Studies of the dietary conditions of various towns have frequently been published in America, and of York, Dublin, and Edinburgh in Britain, but so far no study of a large manufacturing city like Glasgow has been attempted in this country.

The report opens with an introduction by Professor Noël Paton who explains the reasons for undertaking the study. As he rightly points out, the significance of the truism that the prosperity of a city depends largely upon the health and vigour of its labouring classes is not always fully appreciated judging from the scant attention paid to the factors which influence the vigour of a community.

[1] Report upon the Study of the Diet of the Labouring Classes in the City of Glasgow carried out under Auspices of the Corporation of the City. By Dorothy E. Lindsay, B.Sc., Carnegie Research Fellow, with an introduction by Professor D. Noël Paton, Physiology Laboratory, Glasgow University. (Issued by the Corporation of Glasgow.)

The question he asked was, "Do the working classes of this city get such a diet as will enable them to develop into strong, healthy, energetic men, and, as men, will enable them to do a strenuous day's work, or are the conditions of the labouring classes such that a suitable diet is not obtainable? Further, if a suitable diet is obtainable and is obtained, is it procured, or can it be procured, at a cost low enough to leave a margin sufficient to cover the other necessary expenses of the family life with something over for those pleasures and amenities without which the very continuance of life is of doubtful value?" He then goes on to point out how even a very small weekly contribution to insurance "for problematic benefits in future years" may so decrease the expenditure on the family diet as to give rise to imperfect physical development not only of those struggling to live but of those yet unborn. He also gives a very useful summary of the dietary requirements of a man doing hard work, and discusses briefly the nature and the composition of an ideal diet. In discussing the causes of the poor dietary conditions, he finds that ignorance of cooking and bad marketing, as well as penury, play their part.

Miss Lindsay investigated sixty families of the poorest districts in Glasgow (Cowcaddens, Anderston, Bridgeton, Gorbals, and Woodside.) These families lived in houses of one or two rooms, and had from three to ten children. The weekly wages varied between 13s. and 60s., and were in some instances regular and in others irregular. So far as could be determined the housing factor was approximately constant, so that any variations found were due to the diet.

The various families were classified in ten groups:

Income Regular.

Group A.—Children Earning, Average Wage, 39s.

This group, which consisted of seven families, was made up of decent, hard-working people. They showed, however, little foresight in their expenditure on food, and the marketing was bad. Out of the seven diets only one exceeded the standard laid down for hard work.

Group B.—Lodgers Kept, Average Wage, 43s.

In this group of eight families, one household had an income of 60s. a week. In some of the families the steadiest source of income was the lodgers' money. The value obtained for the expenditure was good on the whole. The most extravagant household in the series was found in this group, where 5 lb. of ham and seven dozen eggs were used in a single week.

Group C.—Average Wage, 27s. to 31s.

This group consisted of three families, all with a high standard of comfort. These families belonged to the artisan rather than to the labouring class. The food was good, although the expenditure was high.

Group D.—Average Wage, 20s. to 25s.

The ten families in this group belonged to the average poorer working classes. On the whole the houses were good and well cared for, and in this group the best housewife of the whole series was found. As an example of her marketing capacity the purchase of 4 lb. of halibut (in good condition) for 2d. is cited. The value obtained in the group for its expenditure was good.

Group E.—Average Wage below 20s.

In this group, which consisted of five families, the diet was poor and inadequate. The houses in which they lived were poor and dark, although they were not badly kept. Not a single diet in this group reached the minimum standard.

Income Irregular.

Group F.—Average Wage over 20s.

In the seven families of this group days of feeding and of starvation were found more or less to alternate. Although miserably poor, these families were found to take life as a rule more hopefully and easily than those with a regular income. No thrift was attempted in the majority of cases. In this group was found the best kept house of the whole sixty visited.

Group G.—Average Wage under 20s.

This group consisted of eight families where hand-to-mouth living was the rule. Naturally, in this group the

value of the diets showed great variation. In one, where oatmeal formed the staple, the value obtained was very good, and the children were strong and healthy. In this group, in a fourteen-day study, one household was investigated where the total income one week was 13s. and on the following between 10s. and 11s.

Group H.—Father a Drinker.

In the four families of this group the father in each case was a drinker. The diets were not excessively bad, although they were markedly deficient.

JEWISH.

The houses occupied by the five Jewish families forming Group K were larger and better furnished than the average house visited. The cost of living was in these families artificially heightened, as "kosher" meat is more expensive. Curiously enough, when compared with the preceding families, the value obtained for the expenditure was small. To a certain extent this was due to the fact that a chicken or a portion of one was a weekly purchase. Still, these families were far from extravagant, as in one case a family of two adults and ten children are reported as sitting down contentedly to a dinner where half a chicken was the chief item.

ITALIAN.

Group L consisted of three Italian families. The studies in these cases were difficult to carry out and required very careful supervision. Although these families did not live in the true Italian style, macaroni was freely used. The value obtained for their expenditure was not very good.

NATURE OF DIETS.

Viewing the various diets as a whole, it was found that they were characterized by a lack of variety. Bread, butter, sugar, tea, and beef were found in all without exception. Fish was little used by the British families. Cheese was only used in small amounts in forty-one families. Butter was always used in preference to margarine, as those who used the latter product were looked down upon by their neighbours. Oatmeal was used in forty-six families only, and the average amount per man per day was less than 1 oz.

WAGES AND FOOD.

In discussing the relation of wages to food, it is pointed out that 28.5 per cent. of the families whose weekly income is over 20s., and of those whose weekly income is under 20s., or irregular, 62.5 per cent. have a diet the energy value of which is less than 3,000 calories, a value which is too low for the purposes of ordinary hard work. Miss Lindsay concludes this section of her report by definitely stating that the figures which she has obtained "show conclusively that while the labouring classes with a regular income of over 20s. a week generally manage to secure a diet approaching the proper standard for active life, those with a smaller income and those with an irregular income entirely fail to get a supply of food sufficient for the proper development and growth of the body or for the maintenance of a capacity for active work."

GENERAL CONCLUSIONS.

In the second part of her report Miss Lindsay deals with certain individual problems arising out of her investigation.

1. *The Method in which the Income is Expended.*

She has examined the expenditure on rent and food and the surplus available for other expenses, and has compiled the following table:

	Percentage of Income Expended.		
	On Rent.	On Food.	Surplus.
A, B, C, regular, above 25s.	11.0	61.9	27.1
D, E, regular, under 25s.	15.3	67.3	17.4
F, G, irregular	16.0	75.5	8.5
H, irregular, drinkers...	17.9	86.9	−4.8

It is clear that even with a regular income the amount of money left over—some three or four shillings—for clothing, fuel, taxes, amusements, etc., cannot be said to err on the side of abundance.

2. *Comparison of Urban and Rural Diets.*

In this section she shows that the energy value obtained by the rural classes is distinctly higher than that obtained by the town dweller. She finds that the figures for Edinburgh and Glasgow agree very closely, and she compares with the two Scottish cities the figures obtained for New York and for York (England):

	New York.	York.	Edinburgh	Glasgow.
Rent, percentage of income	15	18	13	13
Food ,, ,,	35	51	62	65
Other expenses ,,	50	31	25	22
Cost per man per diem ...	10.05	5.93	7.29	7.07

3. *Relation of the Physique of the Children to the Diet.*

This section of the report was carried out with the co-operation of Dr. Chalmers, Medical Officer of Health to the City of Glasgow, and Dr. Roberts, Chief Medical Officer to the Glasgow School Board.

Miss Lindsay finds that when the weight of the child at a given age is much below the average for that age it is found, almost without exception, that the diet is inadequate. An attempt was made also to determine the part which an inadequate diet played in the genesis of rickets, but the data obtained were not sufficient to enable her to draw any very satisfactory conclusions. One fact was determined, however, and that was in those families in which overcrowding took place rickets was found.

RECOMMENDATIONS.

In bringing her very interesting report to a conclusion Miss Lindsay states that in her opinion bad marketing is one of the main contributing factors to the poor dietary conditions, and advocates proper school training in cooking and marketing as the best corrective. She maintains that greater use should be made of cheese and the vegetable foods like oatmeal, peas, beans, etc., which are rich in protein. She admits that there is a difficulty in preparing these foods, but rightly states that "if the diet of the labouring classes is to be improved, without increasing the cost, time and labour must be expended on properly cooking these more nutritive vegetable foods."

ROYAL MEDICAL BENEVOLENT FUND.

AT the March meeting of the Committee, thirty cases were considered, and grants amounting to £264 made to twenty-five of the applicants. Appended is an abstract of the cases relieved.

1. Daughter, aged 69, of late M.R.C.S. Used to be a matron of a private asylum, but had a serious accident a few years ago, and is now practically dependent on her friends. Voted £10.
2. Daughter, aged 74, of late M.R.C.S. Maintained herself for many years as a governess, but is now incapacitated by chronic arthritis. Only income £11 a year. Voted £10.
3. Daughter, aged 66, of late M.R.C.S. Was formerly a governess or companion, but had to undergo two serious operations, and now finds regular occupation impossible. Voted £12.
4. M.R.C.S., aged 78. Has practised near London for many years, but had a serious accident six months ago, and has in consequence lost most of his patients. Voted £10.
5. Widow, aged 34, of M.R.C.S. Lost her husband a few weeks ago, and finds that when his affairs are settled there will be very little left out of the sum for which he was insured. Voted £5.
6. Daughter, aged 45, of late M.R.C.S. Kept house for her father for some years after old age compelled him to retire from practice, and at his death, when nearly 90, was quite unprovided for, as his savings had been unavoidably spent. Has been trying to support herself, but is at present in very bad health, and entirely dependent on her friends. Voted £10.
7. Widow, aged 47, of L.R.C.P., L.R.C.S.I. Since husband's death has supported herself as governess or companion, but at present has no post, and is in temporary difficulties. Voted £10.
8. Daughter, aged 61, of late M.R.C.S. No income, and maintains herself and an elder invalid sister by making blouses. Relieved twice, £24. Voted £12.

9. Daughter, aged 57, of late M.R.C.S. Has been a chronic invalid for many years, and is consequently entirely dependent on this fund and a sister who allows her 7s. 6d. a week. Relieved fifteen times, £173. Voted £12.

10. Daughter, aged 62, of late L.S.A. Has maintained herself for several years by letting lodgings, but is in ill health and finds increasing difficulty in doing the necessary house work. Relieved four times, £48. Voted £12.

11. Widow, aged 68, of M.D., C.M.Glasg. Is allowed £14 a year by the Working Ladies' Guild, and receives a little help from a son earning 25s. a week. Health very feeble for many years past. Relieved thirteen times, £148. Voted £12.

12. Widow, aged 68, of L.R.C.P.Edin. No income, and practically dependent on a daughter earning £1 a week as a cashier; health indifferent. Relieved eight times, £84. Voted £12.

13. Widow, aged 63, of M.R.C.S. Health feeble, and consequently finds the help given by her sons, who only earn small weekly wages, insufficient for unavoidable expenses. Relieved fourteen times, £159. Voted £12.

14. Widow, aged 39, of L.R.C.P., L.R.C.S.I. Lost her husband fifteen months ago from new growth, and endeavours to support herself by taking boarders. Two children, aged 8 and 7, the elder a candidate for an institution. Relieved once, £10. Voted £10.

15. Widow, aged 89, of M.R.C.S. Income about £32 a year. Children unable to help. Relieved eight times, £61. Voted £12.

16. Widow, aged 56, of M.R.C.S. No income and so crippled by rheumatism that self-maintenance is impossible. No children. Relieved ten times, £94. Voted £12.

17. Daughter, aged 64, of late M.R.C.S. Takes boarders and receives a little help from relations, but is unable to meet her unavoidable expenses without the assistance of this fund. Relieved six times, £72. Voted £12.

18. Widow, aged 72, of M.R.C.S. Left quite unprovided for at husband's death and supported herself for several years by massage, but is now dependent on an old age pension and a son-in-law, who can ill afford to help. Relieved three times, £30. Voted £10.

19. Widow, aged 55, of L.S.A. Endeavours to maintain herself by taking boarders; health indifferent. Relieved seven times, £76. Voted £12.

20. Daughter, aged 49, of late M.R.C.S. No income and finds great difficulty in obtaining suitable occupation. Relieved twice, £15. Voted £12.

21. Widow, aged 55, of L.R.C.P., L.R.C.S.Edin. No income; no children; health too feeble to allow regular occupation. Relieved nine times, £94. Voted £12.

22. Widow, aged 67, of M.D.Edin. Supplements help given by friends by taking a boarder, but at present is without one. Relieved three times, £18. Voted £6.

23. Daughter, aged 65, of late M.D.Edin. Maintained herself for several years, but is now dependent on friends. Relieved twice, £20. Voted £10.

24. Daughter, aged 54, of late M.R.C.S. Is obliged to live with and nurse an invalid mother, whose income is less than £13 a year. Relieved once, £12. Voted £12.

25. Widow, aged 72, of M.R.C.S. Only income, £21 a year, which is insufficient for expenses necessitated by applicant's age and infirmities. Relieved twice, £10. Voted £5.

Contributions may be sent to the honorary treasurer, Dr. Samuel West, 15, Wimpole Street, London, W.

LITERARY NOTES.

DIONIS, who was surgeon-in-chief to the Dauphiness of France in the early part of the eighteenth century, left an amusing account of some of the principal quacks who preyed on the Parisians of the day. In *Paris médical* M. René Le Roy gives a long extract from the *Neuvième démonstration du cours d'opérations de chirurgie de Dionis* (2e édition, 1714), from which we take a few particulars. The chief place in the fraternity of quacks is assigned to Caretto, an Italian who called himself a marquis. He sold a wonderful remedy of his own invention at the rate of two louis d'or a drop. He was taken up for a time by the court, but the death of the Marshal de Luxembourg under his hands brought his vogue to an end. Then there was an "apoticaire du Comtat d'Avignon," who advertised a pastille which no disease could resist. It was composed of sugar and arsenic, the poison being unequally distributed, so that there was only a small amount in some of the pastilles while others contained 2 grains or more. The alarming effects of the stronger one brought the panacea into discredit. Frère Ange, a Capuchin, had been servant to an apothecary, from whom he learnt to compound a few medicines. His own specific was a syrup which he called "mesenteric." This he gave to all who sought counsel of him, as he attributed to it a selective action whereby it purged the body of whatever might be the peccant humour. He also vaunted a "vegetable salt" of his own preparation as possessing greater virtues than all the drugs used by the doctors. With these two remedies he drove a thriving trade. His fame reached the Court, and he was called in to the Dauphiness. Dionis says he was an honest man, and readily disclosed the composition of his remedies to the physicians in attendance, who consented to their being tried. It would seem they had little choice in the matter, as the royal patient had made up her mind to take them. She did so for a fortnight, when finding they did her no good she dismissed the Capuchin. Another clerical quack in whose hands the same princess placed herself was the Abbé de Belzé, a Norman priest, who purged her twenty-two times within the space of two months. After four months of this treatment she was worse than when she began it. He in his turn was dismissed. Two of the Dauphiness's women, wishing to please their mistress, put themselves under his treatment, to the violent effects of which they both succumbed. A third quack who was recommended to the Dauphiness was one du Cerf, whose nostrum was an oil or essence of guaiacum; this, he boasted, would make those who used it, externally or internally, immortal, as it cured all diseases. This man was not admitted to the princess till the day of her death. After feeling her pulse and palpating her abdomen he declared that he could cure her with an enema containing his essence, which would clear the belly of all impurities. He went off to prepare the enema, but the poor lady escaped his ministrations by dying before he came back. Naturally he attributed her death to the fact that she had not had the benefit of his treatment. The reputation of his elixir of immortality received a mortal blow by his own death, which occurred soon afterwards. Later there came on the scene at Versailles one Bouret, who professed to cure every kind of disease by means of certain marvellous pills. He was presented to Louis XIV, who was sufficiently interested in the matter to suggest that the composition of the pills should be disclosed to his physician Fagon, on the understanding that a considerable sum should be paid for the secret if the remedy seemed likely to be useful. Bouret at first declined the offer, but, changing his mind, was intriguing to obtain a renewal of it when he was attacked by an inflammatory affection of the abdomen. He would take no remedy but his own pills, which, according to Dionis, so much aggravated the inflammation of his bowels that he died on the fourth day. These are only a few among the quacks who in the early years of the eighteenth century found ample scope for the exercise of their peculiar talents in Paris. Dionis, after warning the public against ignorant pretenders, gives an interesting view of the regular profession in Paris at the time he wrote. He says:

> The Paris Faculty of Medicine is composed of more than 100 doctors, all very skilful, while the company of Saint Côme consists of more than 200 Master surgeons who all have given proofs of their skill by a "master-piece" of twenty-five acts, both on the theory of their art and on the practice which they have had before their incorporation into that celebrated company. These two bodies, fertile in learned and experienced persons, have always surpassed all others in Europe, and all those who in a spirit of presumption have ventured to measure themselves against them have been forced to acknowledge their superiority.

Dionis evidently felt, and wished others to feel, that he was a citizen of no mean city.

In an article on David Livingstone, by the Rev. Dr. Norman Maclean, in the *Scotsman* newspaper for March 15th, it is pointed out that the Livingstones came originally from Ulva, one of the Argyllshire Hebrides, and were Gaelic speaking. Dr. Livingstone himself thought that his name in Gaelic was *Mac an leath*, "son of the grey-headed"; but Dr. Maclean says that it is *Mac an leigh*, "son of the physician," or, as we might say, Doctorson or Leechson. This question may be left to Gaelic-speaking medical men to decide, but any one can convince himself that *leigh* means a doctor, for the Gaelic Bible gives the well-known proverb "Physician heal thyself" as *A léigh leighis thu séin*. There is, however, a matter which suggests itself for inquiry at the present time when the Livingstone centenary is being celebrated: it is the question why on the tombstone to the great explorer in Westminster Abbey there is no word to indicate that he was a medical man. He is called "missionary, traveller, philanthropist," but not physician.

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SUPERANNUATION FOR MEDICAL OFFICERS OF HEALTH.

IN our Parliamentary Notes last week it was mentioned that the bill of the British Medical Association for the superannuation of medical officers of health had been introduced into the House of Commons by Sir Philip Magnus, and had been put down for second reading on April 18th. This is not the first attempt the Association has made to secure for public health officers a much-needed reform. In the session of 1903 Sir Francis Sharp Powell introduced for the Association a bill with a like purpose, which was supported, as is Sir Philip Magnus's bill, by members of both political parties. Of those members who backed the earlier measure, Mr. Henry Hobhouse and Sir C. A. Cripps are still in the House of Commons. In the session of 1911 Dr. Hillier introduced a superannuation bill which was backed by Mr. Henry Forster, Sir Clement Hill, Colonel Hickman, Mr. John Robertson, and Mr. Barnes. It will be seen, therefore, that the principle of superannuation for medical officers of health is supported by a large number of prominent members of the present House of Commons, including two members of the Government. The principle was also strongly advocated by the Royal Sanitary Commission of 1869, of which Sir Charles Adderley was chairman. In a memorandum on duties of medical officers of public health, prepared by some members of that commission, it is stated that "to a provision for superannuation, or any other which might put public medical health officers on an equal footing with other branches of the Civil Service, we attach great importance."[1]

The present bill would enable fixed contributions to be made by medical officers of health towards a fund from which superannuation allowances would be drawn. As it is impossible to say whether these contributions will make the fund self-supporting, it is proposed to provide that any deficit shall be made up out of moneys provided by local authorities. In any case the deficiency cannot be very great, as the number of officials concerned is under 2,000, and any deficiency that did occur would be more apparent than real, for a newly appointed officer rarely receives at the beginning of his career as large a salary as his retiring predecessor, and the difference between the two salaries would in many instances more than compensate for any contribution that had to be made towards a superannuation allowance from local funds. The position taken up by some local authorities may be gathered from a report adopted by the County Councils Association on July 25th, 1911, in which it was pointed out that a superannuation scheme could not be regarded as solely for the benefit of the employees, for the question of retirement, upon which superannuation depended, was at least as important for the employer, and it might fairly be said that the primary object and effect of such a scheme was to secure efficient service even more than to benefit the employees.

Many other reasons might be adduced in favour of superannuation, including the increased flow of promotion, carrying with it greater popularity of the service among younger men, and the greater contentment among those already in the service through the removal of anxiety as to the future. These and other considerations no doubt largely account for the readiness with which many employers of labour deem it prudent to make provision for the superannuation of their employees, and for the recognition by successive Governments of the importance of establishing suitable superannuation schemes for State officials.

If it is asked why medical officers of health should be subject to superannuation more than other public officials, it may be replied that the majority of other officials can already claim superannuation. Medical officers connected directly with the civil service, Poor Law medical officers, and medical officers of asylums have all their superannuation schemes, some on a contributory basis, but all in the nature of deferred pay. One of the principal arguments in favour of the superannuation of asylum officials, which no doubt weighed with Parliament when the Asylums Officers' Superannuation Act, 1909, was under consideration, was that these officers held positions of great responsibility and were subjected in consequence to considerable mental strain. The same applies equally to medical officers of health, whose responsibilities are increasing year by year, and who are required to give advice which must be of the highest quality, for upon it may depend the well-being and indeed the very existence of their fellow men. A further important circumstance must also not be forgotten. It is that during the past few years an increasing number of medical officers of health have been appointed who are debarred from private practice, and whose incomes, as well as being non-elastic, are in many instances so meagre that it is impossible for them to make suitable provision for the time of their retirement. Unless they are compelled, as the bill seeks to compel them, to contribute to such provision, they will be obliged to cling to their posts long after, as they would be the first to admit, they ought to give place to younger men. The passing of the bill into law is thus eminently in the public interest, and we have every confidence that those members of Parliament who give to it serious consideration will support Sir Philip Magnus and his colleagues in seeking to pass into law a measure which, though primarily affecting only a few hundred public officials, in reality is of the greatest concern to the inhabitants of the whole country.

[1] Second Report of the Royal Sanitary Commission, vol. ii, p. 354. 1871. (C. -281. -I.)

BIOLOGICAL REACTIONS IN PREGNANCY.

IT is good for our modesty to realize that the improved recovery rates shown in reports on puerperal eclampsia have been reached by methods founded mainly on empirical grounds, and that on this field is being fought out the movement at present evident from more active measures towards conservative systems such as that associated on the Continent with the name of Stroganoff. A scientific basis for treatment is still in the crucible, and the keenness of controversy shows no signs of approaching solidification.

Opinions are not yet agreed as to whether normal pregnancy is to be deemed an exhibition of parasitism or a mutually advantageous symbiosis.

Possibly these should be taken as the terms of a continuous scale of asscciation where the point of transition is not well marked, and where an associate—such, for example, as the *Bacillus coli*—may shift from the safety to the danger side. Possibly, too, we are misled by the nearness of our standpoint to consider pregnancy as a continuing condition, whereas it is biologically a transitory but recurrent one. It is certainly the rule that offspring is biologically a sacrifice to the race and not a source of profit to the parent.

The tools which in recent years the physiological chemist and the parasitologist have developed for the attainment of knowledge have been as yet but sparingly used for the investigation of pregnancy. Seven years ago[1] we gave a systematic account of the investigations that had been carried on with regard to metabolism during pregnancy, showing that, though there was some evidence of nitrogenous loss in the early months, there was evident nitrogen retention during the later months. Dr. Leith Murray of Liverpool has in a recent article[2] given a review of the work done during the last few years, especially on the parasitological side. As Dr. Murray points out, the work is very new and largely unconfirmed. As yet general conclusions cannot be drawn with safety, but some attempt may be made to indicate the direction in which the evidence is leading us.

The desire to explain the startling phenomena of eclampsia readily led to a consideration of the also startling condition of anaphylactic shock, and yet, as Dr. Murray insists, the two conditions are contrasted rather than analogous. The asthma, the depression of blood pressure, and the lowering of temperature seen in anaphylaxis are not characteristic of eclampsia. It is, however, practicable to produce experimental anaphylaxis to placental extract, and in the early part of pregnancy there seems to be already some sensitization to it. Eclampsia is typically an event of later pregnancy. The difference between early and late pregnancy shows itself again both in the complement fixation experiments, which give positive results only about the second and third months, and in the antitoxin reaction in Weichardt's diffusiometer, which is best marked towards the end of pregnancy. In the complement fixation experiments the antigen is prepared from the villi of early pregnancy. The result of some precipitin experiments with liquor amnii showed no evident difference between pregnant and non-pregnant serum.

Serological methods may be applied to the diagnosis of pregnancy, and in this connexion the power of the serum of pregnancy to break up placental albumen has given Abderhalden two reactions of value. A polarimetric reading gave correct results in 75 cases, and a reaction by dialysis, best marked in early pregnancy, had been detected as early as the second week. The serum of pregnancy shows, especially during the first half, an increased antitryptic power, as do fevers, carcinoma, and a few other conditions, and, except at the early part, there is an increase in the lipoid content and a definite cholesterin reaction.

There is some evidence that cases of eclampsia give transitorily a positive Wassermann reaction, but more interest is probably due to the comparison which Dr. Murray has already made in the Obstetrical Section of the Annual Meeting of the British Medical Association at Liverpool and elsewhere between eclampsia and cobra venom poisoning. Analysing the lesions of eclampsia Murray argues for haemolysis, haemoagglutination, fibrinous thrombosis and endotheliolysis, and adds on clinical evidence a neurotoxic element. We may recall how far Dienst made thrombosis go in explaining the phenomena of eclampsia.[3] In the lesions as well as in the clinical characters of cobra poisoning Murray finds analogies to eclampsia. He obtained a positive reaction to cobra venom in 80 per cent. of primiparous and 66 per cent. of multiparous normal pregnancies and only in 22.5 per cent. of non-pregnant persons. In his eclamptic cases a positive result was found in 28 per cent., and Murray argues that the reaction, though not essential, shows a difference in pregnant and non-pregnant persons and that this difference is lost in eclampsia.

The whole of the evidence as marshalled seems to show analogies between the processes of pregnancy and infection and though much work will be needed before we reach finality it seems as if we might be able to explain why the intoxication of the early period gives hyperemesis and that of the later period eclampsia.

[1] BRITISH MEDICAL JOURNAL, June 30th, 1906.
[2] The Immunology of Pregnancy, *Journal of Obstetrics and Gynaecology of the British Empire*, February, 1913.

MIND CURES.

THE article on mind cures from the scientific point of view in the current number of the *Quarterly Review*, though addressed primarily to the intelligent layman, is founded on a wealth of clinical experience which gives it a particular interest to members of the medical profession. The influence of the body on the mind is very well known to every man who is at all observant of human nature in himself and others, and every one admits, as a general proposition, that the mind has a great influence on the bodily functions. But Sir Thomas Clouston, from the nature of his life's occupation, has a more vivid impression of this influence, for good and evil, than most of us.

As a rule, when there is mention of the influence of mind on body, the implication is that the effect is for the benefit of the body—for the cure of disease. But the author of this very striking article reminds us that the effect is often—perhaps quite as often—in the opposite direction, and the aberration or decay of the mind, inextricably linked as it is with the derangement or decay of the brain, is attended by disorder of the bodily functions, evidenced by malnutrition; the brain has ceased to exercise its function of direction or sends out perverted influences. The lowering effect of mental depression on the nutrition of brain and body is well known. "I had a patient once," Sir Thomas Clouston says, "who, being intensely depressed, took the idea he would and should die, and was determined to die; and die he did, in spite of all that could be done for him. A mental cause undoubtedly killed him, but it was through the brain arresting his nutritive energy, for he got thinner and thinner in body until he was utterly emaciated, though he was taking plenty of food." To complete the picture the author adds: "I have had many other patients who fought against their morbid mental depression, and determined to recover and did so, chiefly through the strength of their wills acting through the brain." Every medical man knows in a general way that this is true, but it is well to be reminded of it, and it is useful when reflecting on the many modern systems of faith healing, of Christian Science, and of the New Mysticism, to

[3] BRITISH MEDICAL JOURNAL, 1912, ii, 650.

bear in mind this converse picture, since it will serve to impress the essential facts which underlie the successes which all these systems can with more or less justice claim. It is, we confess, a little irritating to find each exponent and critic of some new-old system of mind cure reproaching medicine with not paying sufficient attention to the influence of mind over body. As Sir Thomas Clouston very justly points out, medicine at the beginning, and in primitive races to-day, knew almost no other means of cure. The medicine man of the savage tribe, with his grotesque costume and horrid ceremonies, the priest-physicians of ancient Egypt and early Greece, with their ritual, reinforced no doubt by change of climate and diet, the charms and amulets of Roman and early Christian times, and the religious ceremonies and pilgrimages of the middle centuries which have been continued to modern times—all these curers and ways of curing acted through the mind and its organ, the brain, on the body. The aim of the application of scientific method to medicine has been to distinguish, to proceed from the general to the particular, and to adapt the means to the end.

The article contains an admirable analysis of the innate qualities of the mind of man which render possible the gigantic success of the obscurantist in medicine and the modern nostrum seller. They are seen to be the powerful fascination for the mysterious, the mystical, the miraculous, and the occult in medicine which still exists, though diminishing as civilization advances, and the tendency in "the undeveloped and semi-irrational mind of man" to believe any statement authoritatively made. Various systems of treatment, nowadays more or less popular, which invoke the mind to cure bodily ills, are reviewed. There thus come under notice hypnotism, Christian Science, theosophy, Professor Freud's system of psycho-analysis, the Emmanuel Movement, and the psychic treatment of Dr. Dubois of Berne. The list, with a digression on hysteria, is, it will be seen, comprehensive, including the regular and the irregular, the old and the very new, in a net whose only fault is that it is not sufficiently capacious to give the fisher full scope for his remarkable powers of popular but yet clear and adequate exposition. In some of them dogmatism, in some expectancy, plays the largest part; in others suggestion, though in most all three methods of influencing the mind, and so causing it to influence the body, are combined. Modern science, as he says, claims to study and explain the occurrence of so-called mind cures. It admits their existence, but calls in the brain as the direct agent through which they are brought about. For the present the parallelism of mind and brain action must be accepted as best fitting the facts. In the cure "the mind comes in by setting the brain to work." Science includes mind as well as life and matter in the scope of its investigations, and "emphatically repudiates the mystical, miraculous, and superstitious views of such mind cures as being unreasonable and often degrading."

Sir Thomas Clouston thinks—and the opinion is one which we have often ventured to express—that the medical profession is not free from blame for the present backwardness of rational views of medicine, nor even for the atmosphere of mystery that pervades physic in the public mind. But we are not sure that we can follow him all the way when he says that medicine has not been candid enough in explaining the general purpose of treatment to patients and to the public, in the hope that thus it may be put on a rational basis in the patient's mind. It may be retorted that we are not always very sure of the rational basis, and that this is particularly true of "mind cures," although Sir Thomas is ready to maintain that scientific and rational explanations can be given of most such cures. He does not deny their existence, but that they are due to occult, mystical, or unexplainable causes, and protests against their irrational misinterpretations. "We may be ignorant," he says; "we need not be credulous."

THE POLICY OF IMPORTATION.

It is asserted by its friends that the desire of the Government is now to pursue a policy of conciliation towards the medical profession in respect of the administration of medical benefit under the Insurance Act. If this information be correct, we venture to think that there is occasion for the exercise of the soothing influence of the central authority to mitigate the rather rough manners of local bodies at various points of the compass. In several districts criticisms by the medical profession of the schemes proposed for providing medical attendance have been met by attempts to introduce whole-time practitioners willing to accept such appointments in such circumstances. We may take Swansea and the surrounding district as an example; there the endeavour of the medical practitioners to secure more adequate remuneration for contract practice than has hitherto obtained has been met by an attempt to establish a medical aid association in the town. The local Division of the British Medical Association appealed to the honorary medical staff of the Swansea Hospital for its support, and at a meeting of that staff a resolution was adopted expressing surprise and indignation that the just and moderate demands of the medical profession had been met in this manner; the resolution concluded with the following declaration: "Recognizing that underpaid medical work is equally as bad for the patient as for the doctor, the hon. medical staff have decided that in the event of the establishment of any society or association having for its object the employment of medical men under conditions not approved of by the medical profession, they will under no circumstances meet in consultation or have any professional dealings with any medical man holding office under such society or association in connexion with a patient either privately or at the hospital, and, moreover, they will decline, except in cases of the gravest emergency, to treat in hospital any member of such society; also that the staff adopt the same attitude towards medical men undertaking contract work at terms below those decided upon by the medical profession of any district." At a special meeting of the board of management, Dr. Lancaster, the senior physician of the hospital, who is also chairman of the board, vacated the chair and presented the resolution in a very forcible speech. He was, he said, the mouthpiece of a unanimous and determined staff, loyal to itself, and loyal to its brethren in the town and district; they knew that the contract system was being more and more abused, and that doctors were underpaid and overworked in conditions which a working man would not tolerate. The wages of the working classes had increased by leaps and bounds, and the only thing which had not gone up was the remuneration of medical practitioners in contract practice, though the expenses had practically doubled in twenty-five years. In its attempt to put matters on a better footing, the profession had been met with discourtesy; it would not tolerate the formation of medical aid societies in the town, and the medical staff of the hospital would not allow itself to be used as a tool to crush their brethren outside. The Mayor, who had taken Dr. Lancaster's place in the chair, protested that he knew from experience that

no body of men appreciated the work of the hospital medical staff more than members of friendly societies, and eventually, on his suggestion, it was arranged that a conference should be held between six medical men, six trade unionists, and six representatives of friendly societies. In Gillingham, Kent, the difficulty to which we referred a few weeks ago has not been abated. The first plan of the Insurance Committee would seem to have been to bring eight men into a town which is already somewhat overdoctored. When the threat in this form failed to produce the expected panic, the committee is reported to have reduced the number to six. Advertisements were put out, and it was asserted that a whole flock of men were tumbling over one another to get an opening in the new El Dorado; it was announced with a flourish of trumpets that six men had been chosen. It was rumoured that three of these were to be dumped at once, and the other three held over as a sort of reserve force to be hurled into the breach in case the first three were overwhelmed by the amount of work. Those local practitioners who had joined the panel could not regard this with complete equanimity. Their lists, it was stated, were not full, and they probably felt apprehensive that they might be sacrificed to establish the imported men. Their anxiety may have been allayed by an announcement that one of the newcomers had not found the conditions of service sufficiently agreeable or promising to induce him to stay, and by the belief that only one of the three was as yet in residence. However this may be, there are some who ask the question, Who will be left in the lurch, if the promised 2,000 patients apiece be not forthcoming—the local men or the newcomers? What the insured are thinking about it all is also a subject of speculation. Gillingham appears to be one of the places where the threat to "close the panel" has been carried out. It is reported that the door is, in fact, so well banged, barred, and bolted that the committee has refused to readmit to the panel one repentant soul who, after entering, had passed out from it again; the legality of this proceeding is questioned. In Scotland, as will be seen by the report in the SUPPLEMENT of the discussion at the meeting of the South-Eastern Division of the Edinburgh Branch last week, a protest is being made against the new form of agreement issued to medical practitioners by the Commissioners in that country. In Ireland matters appear to be at present in a good deal of confusion, to avoid the more picturesque terms commonly used by our correspondents in that island. Altogether, then, there seems to be a good deal of work in the way of co-ordination and conciliation for the Joint Committee of Insurance Commissioners to do.

THE PLEASANTER SIDE OF THE INSURANCE CAMPAIGN.

IT is an agreeable duty to record two recent instances in which the enormous amount of voluntary work done by honorary officers of Divisions of the British Medical Association has received recognition at the hands of members. At a luncheon in the Guildhall, Winchester, on March 13th, attended by a large gathering both of members of the Winchester Division and of members of other Divisions of the Southern Branch, Mr. H. J. Godwin, M.B., F.R.C.S., Surgeon to the Royal Hampshire County Hospital, Winchester, was presented with a testimonial from the members of the Division and medical friends beyond its borders. The Chairman (Dr. H. Maturin of Winchfield), in making the presentation, said that the Division desired to honour Mr. Godwin for his very valuable services to the British Medical Association in Hampshire, and for the skill, tact, judgement, and common sense he had displayed during the momentous period of the insurance controversy. The energy he had expended on this labour of love and the nature of his vexatious and herculean task could only be realized by those who had been in touch with the secretarial work. The presentation consisted of a testimonial containing the signatures of all the subscribers, accompanied by a large silver tray bearing a suitable inscription, and a silver tea kettle. Dr. Fuller England (Winchester) then handed to Mr. Godwin for presentation to Mrs. Godwin a gold bracelet set in jewels. Mr. Godwin briefly acknowledged the presentation and accepted the gift for his wife, who, he confessed, was his right hand. A vote of thanks to Dr. Maturin was proposed by Dr. J. G. Frere, of Fleet, the Representative of the Division, and supported by Dr. J. F. Briscoe, of Alton, a past chairman. Dr. Maturin having briefly replied, the members present went on to the spring meeting of the Division. The number of subscribers to the testimonial was seventy-three, an evidence of the widespread respect and regard felt for Mr. Godwin. The second instance is afforded by a gathering of medical men on March 20th, at Dr. Laslett's house at Gillingham, to make a presentation to Dr. C. Courtenay Lord, Honorary Secretary of the Rochester and Chatham Division of the British Medical Association, in recognition of services rendered by him to the profession during the insurance campaign. Many members of the profession were present from all parts of the Division. Dr. Fairweather, in making the presentation, spoke very highly of Dr. Lord's work on behalf of the profession generally. Dr. Lord, in acknowledging the gift, thanked the subscribers very sincerely for the very tangible recognition they had made him. He also thanked members for the splendid support they had given him throughout the fight—a fact which had made his task much less arduous. The testimonial took the shape of a handsome silver cigar case containing a cheque of substantial proportions. The case bore the simple but eloquent legend, "The Campaign, 1912–1913."

A TRANSITION STAGE.

ON March 14th Sir James Barr delivered to the Sunderland Division of the British Medical Association an address on rheumatoid arthritis, which it is hoped shortly to publish in full. The annual dinner of the Division took place on the same evening under the chairmanship of Mr. D. F. Todd, who took the opportunity of proposing the health of Sir James Barr. The Division, Mr. Todd said, had had three Irish chairmen in succession, and it was thought a fitting occasion to ask another Irishman to give an address to it. The profession had been going through strenuous times, but it had produced men to meet them, and in the struggle Sir James Barr had taken a prominent and a manly part. No President of the British Medical Association had given greater attention to the duties of that office, and every effort was indeed needed, for while it was true that the Association was great and strong, it had to take care that no Government should tread upon the profession as the present one had attempted. Sir James Barr, in reply, said that the great fault of Irishmen was that they thought too much of their own country. He had once heard of an Irishman who, when asked what he would have been if he had not been born an Irishman, replied that he would have been ashamed of himself. The medical profession was in a transitional state. He had anticipated something higher than the tendency he saw in the country at the present time. Instead of recommending young men to join the profession, he now advised them to stop out of it. Those who were in it, of course, had to make the best of it. The reason why he had looked forward to a better time for the medical profession was because he had looked forward to a better and healthier race. He had thought, and still had hopes, that surgical craft would be soon a thing of the past, and that there would be less surgical work necessary than there had been. He had always believed in individualism, for trade

unionism to his mind had always meant a levelling down and not a raising up of the standard. The more individualism was encouraged the better it would be for the nation. If medicine went on as it ought the nation would be as it ought to be—the greatest nation and the greatest people, with not so many decrepit people, lunatics, and mentally deficient, and a quarter of the population to be kept. If things went on as they were, the working man would have to support not a quarter of the people, but far more. But there was a good deal of vitality in the nation yet, and he hoped that the transition stage would soon be past. Medical men should make it their duty to see that they were properly respected and properly remunerated. Dr. Farquharson, in proposing the toast of "The Division," said that no words of his could express adequately the debt the Division, and indeed the whole medical profession, owed to Mr. D. F. Todd. Dr. Modlin, Honorary Secretary of the Division, said that it had already done its fair share of work for the profession, but still had much to do. Among other matters it was giving attention to the treatment generally of school children and to their dental treatment, but every man in the Division and in the Association must realize his own responsibilities.

CHOLIN IN INOPERABLE CANCER.

A REPORT of the address delivered by Professor Czerny of Heidelberg at the meeting of German Scientists and Physicians on the various non-operative methods of treating cancer was published in the JOURNAL of September 21st, 1912, p. 727. Professor E. Werner, who is also working at the Samariterhaus in Heidelberg, has recently in part gone over the same ground. After referring to radio-therapy he goes on to maintain that a chemical imitation of radio-activity is involved in the use of cholin. Of the cholin salts he has tried he prefers the borate, which he administers by intravenous injections, using at first 2 to 3 c.cm. of a 10 per cent. solution diluted to 20 c.cm. Later the dose is increased to 4 to 5 c.cm. For injection into the tumour or into the gluteal muscles he uses undiluted 10 per cent. solutions in doses of 2 to 5 c.cm. He usually gives 4 or 5 injections each week, but special precautions have to be taken to prevent a disturbing sensitization of the skin. He has treated 171 patients, including inoperable or recurrent cases of various kinds. All were advanced and apparently hopeless cases. Marked improvement was observed in 21 of the cases, including 1 carcinoma of the fauces, 1 rectal carcinoma, 1 round-cell sarcoma, 2 lymphosarcomata, 1 carcinoma of the parotid gland, 7 mammary carcinomata, 2 uterine carcinomata, 2 carcinomata of the stomach, 1 bladder cancer, and 1 carcinoma of the gall bladder. In 28 cases a considerable improvement and decrease in the tumour was observed, while the remaining 122 patients did not derive material advantage from the treatment. This may partly have been due, he thinks, to the fact that they did not remain under treatment for a sufficiently long period. In a series of 56 cases, in which thorium X and Roentgen rays were used as well as the cholin, he found that the dose of the latter was of importance. When between 3 and 5 grams of cholin in solution were used, only 1 out of 25 cases was materially improved, while in 20 the result was negative; when between 5 and 8 grams were used, 2 out of 18 were improved markedly, and in 10 the result was negative; while, when over 8 grams were injected, 7 out of 14 showed marked improvement, 5 showed considerable improvement, and only 2 did not respond to the treatment. He has gathered from other cases not included in the series, in which the treatment supplemented operation, that the tumours soften and become fluid under the influence of cholin, in a manner similar to the changes seen in mice cancers under chemo-therapeutic remedies. It is, he states, too early to speak of the best method of applying the treatment, since he has only used it for about a year. He gives some details of two apparently hopeless cases of stomach and gall-bladder cancer, in which the result was most striking. He, however, warns the reader that these non-operative means of treating cancer should only be applied in cases in which an operation cannot be carried out, or in order to prevent recurrence after an operation has been performed. In no instance has it been proved that cancer can be cured by these means.

STATISTICS OF NOTIFICATION.

A REPORT on the incidence of notifiable infectious diseases in England and Wales during 1912 has been presented to the Local Government Board by the medical officer, Dr. Newsholme, and is issued as a separate publication.[1] The report contains statistics showing the number of cases and the incidence in relation to population of each of the notifiable acute infectious diseases in every sanitary area of England and Wales and in certain grouped areas. The issue for the year 1911 was the first full record of the kind. The newly-issued report contains a brief history, by Dr. Bruce Low, of the occurrences of plague, cholera, and small-pox abroad during the year 1912. The information as to small-pox has been added in view of the increased importance which attaches to imported small-pox as the chief source of the disease in this country in recent years, and it is hoped that the information will be helpful in drawing attention to some of the likely sources of imported infection. The report also contains for the first time complete statistics of cases of pulmonary tuberculosis notified during the year. This has been rendered possible by the Board's general order which came into force on January 1st, 1912. In this issue the number of cases of pulmonary tuberculosis notified in each sanitary district is not shown, because it is felt that for several years comparisons, especially for small areas, will be liable to a number of errors, and because, speaking generally, such comparisons, if unchecked by corrected death-rates, are, it is rightly considered, to be deprecated. In the report for 1913, however, it is intended to give tables showing the number of cases of both pulmonary and non-pulmonary tuberculosis in certain large areas and the age and sex of the patient. In 1912 the total number of notifications was 110,706; the number notified in London was 33,392; in England, excluding London, 72,193; in Wales and Monmouthshire, 4,966; and in ports, 155. The notification of acute poliomyelitis only became compulsory on September 1st, 1912, and subsequently 421 cases were notified, but prior to the general order nearly 900 sanitary authorities had made the disease notifiable, and the total number recorded was 824. The same observations apply to the notification of cerebro-spinal fever; the number of cases notified after the order came into operation was 104, while the total number for the year was 272. The number of cases of small-pox notified in England and Wales in 1912 was 111, as compared with 265 in 1911; of typhus fever 31; of enteric fever 8,262, as compared with 13,730 in 1911; of erysipelas 22,865, as compared with 24,939; of diphtheria 44,687, as compared with 47,747; and of scarlet fever 107,477, as compared with 104,617. The total number of cases of puerperal fever was 2,184, as compared with 2,029 in 1911. The highest rates from puerperal fever occurred in Fulham and Manchester (0.19), Bermondsey and Warrington (0.17), Finsbury, Birkenhead, and Stoke-on-Trent (0.14), and Sheffield (0.12). The lowest rates in London were in St. Marylebone (0.03) and Woolwich (0.02), and in Holborn (none), and among the county boroughs in Gateshead and Halifax (0.01); in Canterbury, Derby, Eastbourne, Lincoln, and Norwich no cases were notified. The administrative counties showed a curious variation, the highest being 0.12 in Carmarthen,

[1] Reports to the Local Government Board on Public Health and Medical Subjects. New series, No. 78. London: Wyman (through any bookseller). 9d.

while in Merioneth, Radnor, Rutland, and Westmorland no cases were notified; the East and North Ridings of Yorkshire also showed well with a rate of 0.01.

EPIDEMIC INFANTILE PARALYSIS.

The State Medical Institute of Sweden made a report of its investigations on epidemic infantile paralysis to the Fifteenth International Congress on Hygiene and Demography at Washington in 1912, and this is now published in English.[1] It contains six accounts of experimental and pathological investigations by Kling, Pettersson, Wernstedt, and Josefsen, and an epidemiological report of the great Swedish epidemic of 1911 by Wernstedt. Both interesting and valuable results were obtained by the investigators; they found that the virus of the disease is in all probability always present on the mucous membranes of the nose, mouth, pharynx, and intestine of the patients during the acute stage, and they also found it in abortive cases, and in healthy persons who might or might not have come in contact with patients severely or fatally affected. Cases that recovered might still be carrying a virulent form of the infection nearly seven months after the onset of the illness; the authors think that the success of their experiments in so many cases may have been due to the fact that they had to deal with a virus of exceptionally intense virulence. Josefsen found the virus in two handkerchiefs and some needlework handled for a week by children severely affected by acute infantile paralysis, but not in flies caught by the patients in the wards; nor could it be found in fleas taken from patients or monkeys similarly affected. In monkeys the mortality was high—96.6 per cent.; 44 out of 120 died within the first twenty-four hours of the onset, and four main paralytic types of the disease were distinguished in them—an upper, a lower, a mixed, and a type showing a general muscular weakness (the marasmic type of Leiner and von Wiesner). The great Swedish epidemic of 1911 began in the early spring; in July there were 179 cases, in August 893, in September 1,067, in October 433, in November 235, out of a total of 3,840 cases; and the epidemic had not ceased to spread early in 1912. Town and country were about equally affected; no common source of infection could be found, and Wernstedt believes that the origin of the epidemic of 1911 was intimately connected with and to be sought for in the previous epidemic of 1905 (over 1,000 cases). Topographical studies show that the local centres of the epidemics in 1905 and 1911 were generally immediately adjacent to one another, though only a few cases in 1911 occurred actually in the 1905 centres, and vice versa. Hence it is concluded that the epidemic of 1905 produced a general and widespread immunity to epidemic infantile paralysis in 1911. The papers forming this report contain a great deal of interesting and important matter; its illustrations are good, its English does great credit to its writers, and the whole should be in the hand of every neurologist.

POOR ECONOMIES.

The guardians of the West Ham Union have decided to advertise for a whole-time district medical officer at a salary of £350 per annum, rising by annual increments of £20 to a maximum of £450. The terms of the advertisement, the publication of which in the British Medical Journal has been declined, should be carefully examined by any medical man who might be disposed to make application for the post. At first sight the salary might seem attractive to a newly qualified practitioner, but he should bear in mind that when in five years the maximum of £450 a year has been attained, any prospect of financial improvement is ended, and for the rest of his life, should he retain the post, that will be sum on which he must maintain his home and family and educate his children. He must also remember that he will be on duty twenty-four hours a day for seven days a week, with the probable or possible exception of a summer holiday. Should he give up the post at the end of five years he will lose the amount that he has paid towards his superannuation, probably about £40, and will have to make a fresh start. The scheme appears to involve a combination of three districts, now staffed by three medical officers, whose combined salaries would appear to have started at about £390 a year rising to £540. In addition the present holders of these separate appointments have time to devote to more remunerative private work; moreover, they can retain the payments made to them for extra services, which, according to the terms of the advertisement, the whole-time medical officer would, if appointed, have to pay over to the guardians. The advertisement is not explicit with regard to the amount of work, but states that the average number of persons in receipt of outdoor relief is 1,423. It does not state whether medical relief is meant, but the total probably refers to those persons who have been granted permanent relief tickets, and only includes the aged, those permanently sick, and widows and children. If this be so, the advertisement contains no mention of at least half the work. Nothing is said in it of those cases of illness among the poor treated under the medical orders issued by the relieving officer in each case as required. We believe that we are right in saying that the number of such orders issued annually in the three districts now proposed to be combined has been about 2,000 a year. If we make an allowance for the change which is being brought about by the Insurance Act, we shall still be well within the mark in saying that the number of such orders issued in future will be at least 1,000. This, again, on a very moderate estimate, will apply to a population of at least double that number—that is to say, of 2,000 persons—but probably to a considerably larger number. All these 2,000 persons must be reckoned among the potential patients of the whole-time district medical officer proposed to be appointed. Adding to these the 1,423 patients at present in receipt of outdoor relief, we get a population of 3,423 persons, any of whom he may be called upon to attend. This, as we have said, is a very moderate estimate. The latest State capitation rate for medical attendance is 7s. per annum, and presumably this rate is considered by the authorities to be neither too much nor too little. At this rate the medical list of the new district medical officer would give him a salary of about £1,200 per annum, but the West Ham guardians offer a salary of £350. Panel practice has many disadvantages, but within the last three weeks both an infirmary superintendent and a chief medical officer in East London have, it is reported, resigned their posts under their guardians to take on insurance work. This goes to show that even panel work is preferable to the Poor Law Medical Service as it is at present controlled and remunerated.

The announcement that Dr. A. L. Galabin died on the evening of March 25th will be received with much regret by old Guy's men and by many who knew medical London twenty or thirty years ago. Dr. Galabin had been in Sicily from the beginning of the year until a few weeks ago. He returned to his residence at Bishopsteignton on March 19th, and was taken ill with lobar pneumonia on the following day. In spite of the attention of Dr. Morton Palmer of Teignmouth, who had the advantage of consultation with Sir James Goodhart, death ensued after five days' illness.

A bill has been introduced into the Nebraska Legislature to provide that English shall be used in the writing of all prescriptions, and to forbid the use of any other language. A similar bill is now before the North Dakota Legislature.

[1] *Investigations on Epidemic Infantile Paralysis.* Stockholm: Nordiska Bokhandel. 1913. (Roy. 8vo, pp. 275, plates 8, maps 4.)

Medical Notes in Parliament.

Vivisection Advisory Committee.—In Supply, on Tuesday of last week, Colonel Lockwood criticized the appointment of Sir John Rose Bradford to be a member of the Advisory Committee appointed by the Home Secretary to advise him as to the administration of the Vivisection Act. Colonel Lockwood's criticism appeared to be based on the grounds that Sir J. Rose Bradford had at one time performed certain experiments on dogs, and that it was only by a narrow majority that the Royal Commission on Vivisection had failed to pass a recommendation in favour of excluding dogs altogether. Mr. George Greenwood, who supported the contention, said that although Sir J. Rose Bradford did not now hold a licence, he had held one not long ago, and he believed that the Commissioners intended that a man who had held a licence and who was well known as a vivisector should not be among the advisory body. While admitting that the appointment was technically right since Sir J. Rose Bradford no longer held a licence, he asked the Home Secretary to reconsider the matter. Mr. Butcher thought it was a strange thing to put on an Advisory Committee appointed for the purpose of seeing that the Vivisection Acts were properly administered a man who had made experiments on dogs. Sir Philip Magnus pointed out that the fact that Sir J. Rose Bradford had performed experiments of this nature really rendered him a very suitable person to be an adviser, since the advice of a person quite unacquainted with the nature of these experiments would not be useful. —Mr. McKenna, in his reply, said that the Royal Commission had recommended that the Royal Society and the Royal Colleges of Physicians and Surgeons should be invited to suggest names to the Home Secretary for appointment to the Advisory Committee, and that Sir J. Rose Bradford had been suggested by the Royal Society. He was aware that charges of cruelty had been made by certain witnesses, but the Commission had not given any countenance to them, and he thought that no one who read the evidence of the charges and Sir J. Rose Bradford's reply could doubt that he had completely vindicated himself; Sir J. Rose Bradford had not held a licence for nine years. In reply to a question on March 24th Mr. McKenna said that Sir A. A. Bowlby and Sir J. Rose Bradford were the only members of the Advisory Committee who had ever held licences to perform experiments on living animals, the former twenty-six years ago, and the latter nine years ago.

The Army Estimates seem to increase in bulk and detail year by year, so that every pound of the millions voted can easily be traced. In the estimates for medical services the money for officers and men is in separate votes. Vote I, "Regimental Pay, etc.," includes the warrant, non-commissioned officers and men of the Royal Army Medical Corps, numbering 3,797, at a charge of £112,500. In Vote II, "Medical Establishments, etc.," the estimate for 1913–14 is £440,000, an increase of £4,000 on 1912–13, entirely due to greater cost of medicines and appliances of all kinds, including medicines for the Special Reserve, for there is an actual decrease in the pay of medical officers owing to their smaller numbers. The establishment of medical officers for the year is 1,069, against 1,085 last year. The total is made up of 735 on the British and 334 on the Indian Establishment, the reduction being entirely in the former. There are 64 retired officers still employed. On the non-effective rate there are 538 medical officers, 49 quartermasters, and 26 lady nurses, but this list has not shown any tendency to increase in recent years; indeed, its highest point was reached about twenty years ago, when the retirement of the Crimean and Mutiny officers took effect. The great reform in the status and efficiency of the Army Medical Service in these last decades has undoubtedly repaid the State a hundredfold in the remarkable improvement in the health of the troops, to which the Secretary of State for War bore generous testimony when he said, on introducing these Estimates on March 20th: "We have reduced the number of men under (medical) treatment (since 1898) almost exactly by half. Of course this means a great increase in fighting strength. This wonderful change, due in great measure to the Royal Army Medical Corps, and on invaliding being lower than it has ever been before since statistics were taken, reflects credit on the Royal Army Medical Corps, and in great degree on the troops themselves."

Eyesight and Colour Blindness Tests.—Mr. Lynch asked the President of the Board of Trade, on March 20th, whether, in regard to the mercantile marine tests for eyesight and colour blindness, they were carried out by non-medical men; and, if so, whether this practice prevailed in any other country.—Mr. Robertson said that the local examiners in form and colour vision were not medical men, but an ophthalmic surgeon had been added to the body of examiners to whom candidates who had failed locally could appeal. A return published in 1910 contained information with regard to the examiners who conducted the test in certain of the principal maritime countries. Mr. Lynch also asked what means, if any, were adopted to test the form vision and colour vision of the look-out men in the mercantile marine.—Mr. Robertson replied that the Board of Trade had provided facilities for any person serving or intending to serve at sea to undergo the same examination in vision as that prescribed for candidates for certificates of competency, but under the Merchant Shipping Acts there was no power to compel a man who was employed as a "look-out" on board ship to have passed the sight test. It rested with the owner or master of a ship to satisfy himself as to the competence of a seaman appointed to perform the duty, and the attention of owners had recently been called to the matter, by means of a notice.

Hospitals and Legacy Duty.—In reply to a question addressed by Sir John Barran to the Chancellor of the Exchequer on March 25th, Mr. Masterman stated that the appeal made on behalf of voluntary hospitals to remit the legacy duty had been carefully considered, but that the Chancellor of the Exchequer was unable to see his way to make the suggested alteration, even in view of the present and prospective difficulties and the responsibilities devolving on voluntary hospitals through the Insurance Act. The amount of duty involved was, he said, approximately £100,600 per annum. Attention was called to the fact that hospitals in Ireland were already exempt from this duty, but Mr. Masterman would not commit himself to defending this discrepancy further than to point out that it had existed for sixty years.

Calf Lymph.—Mr. Keir Hardie asked the President of the Local Government Board, on March 25th, whether his attention had been called to a memorandum on the manufacture of glycerinated calf lymph, by Captain W. A. Justice, of the Indian Medical Service, in Progress of Sanitary Measures in India (Cd. 6538), describing visits to the vaccine institutes at Hong Kong, Tokio, and the dépôt at Hendon; whether he sanctioned for use as the best stock lymph that which was derivable by the cultivation of small-pox virus through four to five calves and continued without admixture; whether small-pox virus was now in use at the Hendon dépôt for the purpose of propagating lymph supplies or setting up any fresh strain of lymph required; and whether bull calves were preferred at Hendon because the lymph collected from the surface of the scrotum was of greater activity than other lymph. —Mr. Burns said he was aware of the memorandum referred to. As regards the source of lymph used at the Government lymph establishment, the usual method of renewing lymph was by vaccinating calves with vaccine lymph obtained from children, but in some instances the lymph had been obtained from abroad, and in such cases it would usually not be practicable to give its original sources. He might, however, state that in no case was lymph used at the establishment unless it had been passed through a series of calves. The answer to the last two parts of the question was in the negative.

The Mental Deficiency Bill was introduced by the Home Secretary on March 25th. It contains a new provision to the effect that the decision to treat a person as mentally defective should be revised at the end of the first and second years, at the end of every subsequent five years, and also when the person reached the age of 21 years.

Leprosy.—In reply to Colonel Yate, the President of the Local Government Board said that there were only a few cases of leprosy in this country, and, so far as he was aware, the disease was not spreading. He was advised that measures for the compulsory segregation of persons suffering from leprosy in this country would not be justified at present, but the whole question was under the careful consideration of the Local Government Board.

Mines Rescue and Aid Order, Scotland.—Mr. McKenna said, in reply to Mr. Duncan Millar, that the returns called for from the Scottish mine-owners, under the Mines (Rescue and Aid) Order, had been tabulated, and showed that in some counties the progress made was far from satisfactory. The Order had been in force for nearly a year, giving the owners ample time to make arrangements, and unless he received an assurance that energetic steps were being taken at once it would be necessary to take legal proceedings to enforce the Order.

Scottish Universities Additional Grants.—Mr. Masterman informed Mr. Munro-Ferguson, on March 20th, that the payment of the additional grants to the three Scottish Universities which had agreed to fulfil the necessary conditions would be made immediately.

Irish Milk Commission.—Mr. Birrell informed Mr. T. M. Healy, on March 20th, that the report of the Irish Milk Commission was in course of preparation, and would, it was expected, be ready in about six weeks.

Scotland.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

The Tuberculosis Problem.

On March 18th Dr. J. C. McVail, Deputy Chairman of the Scottish Insurance Commission, gave a lecture in the Synod Hall, Edinburgh, on the relation of the tuberculosis problem to the Insurance Act. Fifty years ago, he said, there was no tuberculosis problem, not because nobody died of the disease, but because no one supposed that it was preventable. Some far-sighted people, amongst whom was Professor Hughes Bennett, believed that by abundance of fresh air night and day it might be cured; but beyond this point medicine had not progressed. Now there were three lines along which the disease could be treated—the attack by the bacillus could be prevented, the individual powers of resistance could be fostered, and recovery from the attack could be aided. The Insurance Act helped in all these three directions. It provided the insured person unfit for work with 10s. weekly for six months, and 5s. weekly afterwards as long as he remained unfit. It provided him with medical attendance and medicine throughout his illness, even if he were not recommended for sanatorium benefit. It provided a fund (about £87,000 annually in Scotland) for the treatment of tuberculous insured persons recommended for sanatorium benefit. It allocated a capital sum of about £158,000 as Scotland's share in a parliamentary grant to aid the provision of institutions for tuberculous persons in the population generally, whether insured or not. Finally, it provided a sum of about £57,000 a year for the United Kingdom for the purpose of scientific research into all that relates to the spread and treatment and prevention of this and any other diseases which might seem to call for it. Further, the Imperial Treasury had recently promised to pay one half of all expenditure for the extension of sanatorium benefit to the dependants of the insured and to the uninsured. These things would make a vast difference to the public health of the community, and they would still do this even if there were no tuberculosis to fight against.

The Inclusive Fee in Medicine.

The question of the inclusive fee in medicine in Edinburgh University is likely to prove a troublesome one to settle. At the meeting of the University Court on March 18th a letter was read from the Treasury asking whether any steps had been taken to surmount the difficulties. The Court, in its reply, submitted that as the adoption of the inclusive fee in the Faculties of Arts and Law and in Pure Science was to be regarded as tentative and provisional; it was of opinion that experience had not yet been gained to justify its adoption in the Faculty of Medicine and in Applied Science. The question, however, is being raised in extramural circles whether some light on a dark subject might not be gained by a full discussion of the matter by representatives of the university and of the school of medicine of the Royal Colleges. Admittedly the difficulties are great, but no statement has yet been made to show that they are insurmountable; further, when the problem of the adoption of the inclusive fee in medicine does come up for settlement it will be well to have prepared the way for arrangement between the two great teaching bodies inside and outside the university. Some steps have already been taken towards solving this problem as it presents itself in Glasgow, where there is also an extramural school. Further, on March 22nd there was a conference at Perth between delegates from the Business Committees of Edinburgh and Glasgow Universities' General Councils, to consider the question of the applicability of the inclusive fee to the faculties of Medicine in the Scottish Universities. Some progress was made, for it was remitted to a subcommittee to prepare a reasoned statement showing in detail the financial and administrative difficulties which have been urged against the adoption of the inclusive fee in medicine, the probable ultimate effect of such an inclusive fee on the extramural schools, and of the uniformity of the inclusive fee on the progress of the individual universities. The time, therefore, seems to have come for making a conjoint effort to settle this matter or to show good reasons for no longer attempting its settlement.

Ireland.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

Treatment of Tuberculosis.

A scheme has been suggested under which the Public Health Committee of the Corporation would be responsible for the treatment of tuberculosis patients in Dublin. The money, half of which will be supplied by the Treasury, is to be handed over to the Corporation, and the Public Health Committee agrees to provide treatment for all persons whose claims are sanctioned by the Insurance Committee. In the Crooksling Sanatorium and the Collier Dispensary the Corporation is, of course, equipped to meet immediate demands, and it is not unlikely that the Allan Ryan Home may eventually be included in the scheme. It is stated that a second special dispensary, with separate staff, will be provided for the south side of the city. Specially qualified practitioners, it is said, will be entrusted with the home treatment of patients, and it is believed that one of the orders of visiting sisters will co-operate in this phase of the work, while the Samaritan Committee will also continue its work. Wards for the treatment of suitable cases of tuberculosis will, by arrangement, be provided in many of the general hospitals. It is also hoped that after a time one or two hospices for the treatment of children may be established. At present the greatest need is for suitable places for advanced cases, and it would appear from inquiries that are being addressed by the county councils to the Dublin hospitals which have been recognized for "sanatorium treatment," that an attempt will be made to dump these hopeless cases in the Dublin hospitals. Included in the above outlined scheme is the appointment of a tuberculosis officer, but here a cheese-paring economy is shown, since the salary to be offered for a whole-time officer is £300 per annum, the smallest offered for such a post by any county council in Ireland; it is absurd to expect that a man who would inspire the medical profession in Dublin with confidence would accept such an arduous post for this remuneration. The scheme has still to be sanctioned by the borough Insurance Committee at a special meeting, and it is to be hoped that this defect will be rectified. At a meeting of the Tyrone County Council held last week, twenty applications for the appointment of tuberculosis medical officer for the county at a salary of £400, increasing to £500 per annum, with £100 travelling allowances, were considered. Dr. Arthur Lanigan O'Keeffe was elected.

NEWCASTLE SANATORIUM CRISIS.

The position at Newcastle Sanatorium remains unchanged. The daily press has been flooded with letters, and, as might have been expected, the primary question of lay control of the medical treatment of the patients has been largely pushed aside by the entirely secondary one of the merits of the particular treatment. Numerous letters have appeared from former patients of the doctor in question. The essential part of the treatment in question is stated to be the intravenous injection of iodoform in ether. The method has, we believe, been tried both on the Continent and in Great Britain, but does not seem to have become established. From inquiries made and from the examination of the published reports, it would appear that the results obtained at the Newcastle Sanatorium compare very favourably with those of other sanatoriums in the United Kingdom. The excuse offered by the board of governors that the appointment of another visiting physician was necessitated by the large increase in the number of patients—from 24 to over 100—falls to the ground when it is understood that this increase occurred so long ago as 1905, and that since then a second resident physician has been appointed. Numerous methods of treatment have been tried from time to time by the visiting staff, including tuberculin with opsonic control, garlic, and dioradin, but in every instance it appeared that the control cases, treated merely by the open-air method, did quite as well.

ANTIVACCINATION IN IRELAND.

In the seventeenth annual report of the National Antivaccination League, reference is made to Ireland, showing the serious state of affairs that has arisen. Though the Belfast and other boards of guardians have refused to stop prosecutions, over twenty unions, including both the North and South Dublin, have refused to enforce the Vaccination Act. The Local Government Board has done its best to persuade the various boards that it is their duty to enforce the law, but without avail. In Waterford the parents were fined 1d. for vaccination offences under the Public Health Act. The report indicates that attempts made to arouse the interest of Irish members of Parliament have not been very successful.

England and Wales.

[FROM OUR SPECIAL CORRESPONDENTS.]

MANCHESTER AND DISTRICT.

THE RECOMMEND SYSTEM AT THE MANCHESTER INFIRMARY.

THE pressure on the available accommodation for indoor patients at the Manchester Royal Infirmary and the necessity that there should be a substantial increase in the donations and subscriptions if the institution is to meet its annual liabilities, led the Board of Management, at a meeting last week, to confirm a resolution submitted by the House Committee in the following terms:

> That persons resident elsewhere than in Manchester and Salford applying for admission as in-patients must lodge with the general superintendent a recommend signed by a trustee resident or carrying on business in the town or district within which the applicant resides, but the recommend may be dispensed with in exceptional cases with the consent of the general superintendent. This resolution shall not apply to cases of accident or emergency, which will be treated as heretofore.

The Chairman of the Board, Sir W. Cobbett, explained that the recommend system was formerly used as a means of ascertaining the opinion of the local medical men as to the physical state and the means of the applicants for admission as in-patients, but of late years it had been found better to rely on the examinations of the infirmary doctors and the investigations of the District Provident Society, and though the recommend system had not been entirely abandoned, it had practically been little used. But it was now found that a very considerable number of applicants for admission were coming from neighbouring or even distant towns, costing the infirmary a large amount for treatment, though in many cases little or nothing was contributed from those towns towards the cost. As an example, one neighbouring town sent patients whose treatment cost something like £400, though the total subscriptions from the town were only £14. In another case, 14 employees of a large firm in a distant town were received as in-patients last year, but the firm on being applied to for a subscription definitely refused. At the same time there were often as many as 160 to 200 persons waiting for admission, and the Board thought it was not right that the number of waiting persons in the home district should be increased while the beds were being occupied by people from distant places which contributed little or nothing to the infirmary. Owing to the ability of its medical and surgical staff, the infirmary had obtained a reputation which induced medical practitioners at a distance to send difficult cases for special treatment, and it was realized that exceptional cases would occur which ought to be met with proper consideration, but it was thought that these cases were sufficiently provided for in the resolution by giving the general superintendent discretion to dispense with recommends.

It has long been a matter of complaint that the beds at the infirmary were often occupied by patients from towns even as far as 100 miles away, while there were no vacancies for Manchester and Salford patients, and the introduction of the recommend system, against which there are so many objections on other grounds, appears to the Board to be the only practical method of meeting the difficulty. At the same time it must be acknowledged that it is a dangerous weapon to employ.

A UNIFIED HEALTH SERVICE.

At the third session of the Labour Elected Persons' Conference in Manchester on March 22nd, Dr. Alfred Salter, of Bermondsey, gave an address on a unified local public health service. There was, he said, a lamentable lack of co-ordination between the various agencies for the prevention and treatment of disease. As an illustration he quoted a case of a family afflicted with tuberculosis where the father, having been ill for some months, was not eligible to come under the Insurance Act, and was being treated as a pauper by the board of guardians; the wife, being at work, was being dealt with by the London Insurance Committee, and would soon be sent to a sanatorium; one of the children had been confined and had a baby, and the local health officer was attending at intervals to give advice as to the care of children; another child was being dealt with at a school clinic, another was attending for treatment at Guy's Hospital, and another was being dealt with at a local tuberculosis dispensary run by private charity. Such overlapping and inco-ordination, Dr. Salter thought, was wasteful and deplorable, and there ought to be some correlation between the various agencies for prevention and treatment. There were about 26,000 doctors occupied in private practice, but they were very unevenly distributed, being too numerous in some places and insufficient in others. In Bermondsey, for example, it would take four times as many doctors as there were at present to do the work satisfactorily without being overworked. On the other hand, in residential districts the doctors had not enough work to do. He suggested that the State should see that the local panel doctors had not too many patients, and that doctors should be called from districts where there were now too many and planted in industrial centres where they would be of use and better off financially. He called attention to the ease with which people who were generally considered to be outside the Insurance Act might enjoy its benefits. Dependants of the insured were not now entitled to medical treatment, but they could obtain it in a very simple way. For example, any working woman could take in a little sewing for a week, or do a little washing for a neighbour. She thereby became an employed person, could get a card from the post office, stick one stamp on it, and she was thereby entitled to free medical attendance for the rest of the year. He laid emphasis on the point that every insured person is entitled to adequate medical attendance and treatment, and he submitted that this meant that he was entitled to be sent to a hospital or operated on when necessary at his own home by an expert or sent to a convalescent home free of charge. Allusion was made to the falling off in the number of medical students and the shortage of doctors,

and to remedy this he suggested that labour-elected persons should use all their influence to get scholarships set apart for the clever sons of working people to enable them to become doctors. Above all, he pleaded for the linking up of the chain of medical service, with full correlation from top to bottom between all the curative and preventive services, which should all be brought under one authority. A short discussion followed the address, in which a number of delegates took part.

Bovine Tuberculosis.

Mr. J. W. Brittlebank, chief veterinary inspector of the Manchester Corporation, in an address to the Nantwich Farmers' Club last week on bovine tuberculosis, said that he found from the statistics of the Board of Agriculture that there were about 3,000,000 dairy cows in Great Britain, and it was an accepted fact that 33 per cent. of the cows were affected with tuberculosis in some form, not taking account of feeding cattle or cows of that class. Assuming that the depreciation in value of an affected cow amounted to £1 a year, he concluded that each year there was a loss of £1,000,000. Of the 33 per cent. of cows which reacted to the tuberculosis test the percentage of cows which had the disease in a dangerous form was from 2 to 7 per cent. He hoped that the dairying industry would bring pressure on the Government to compel an adequate advance and a liberal grant of money to enable them to check the disease.

Correspondence.

TRADE UNIONISM AND MEDICINE.

Sir,—The discussion aroused by Dr. Bateman's letter anent trade unionism and its advantages or disadvantages for the medical profession is one that, at all events, indicates the general sense of a need for some effective means of co-operation between the members of the medical profession, and at the same time seems to me to show how widespread are the differences of opinion as to what should constitute the objects of union in the profession.

Would it not be wiser—more scientific, in fact—if we first endeavoured to arrive at some guiding principle as to what the proposed union should be designed to do? Is it to deal with rates of pay only, and terms and conditions of medical labour, or is it to regulate the work and social relations of the profession with the public generally? If the former be the main objects of the proposed combination then certainly the trade union would at first glance seem to be the sort of thing we want. The functions of a trade union as exemplified in the industrial organizations are to obtain for its members fair pay—that is, such a rate as will enable a condition of reasonable comfort to be obtained, and also such hours and conditions of labour as will not undesirably strain the human organisms concerned. Its main weapons are the strike and the boycott. To a more limited extent so far it has also made use of political agitation, and the subsidy of representatives in the various governing bodies. To some extent the trade union has succeeded in attaining its objects, but the results of the recent general strikes seem, on dispassionate consideration, to be incommensurate with the amount of the effort and sacrifice entailed on its members. Also the strike is coming increasingly to be considered as an anti-social proceeding because of the suffering it entails on the mass of the community.

Now there is a real need in the medical profession for some sort of assurance of fair pay and still more of fair conditions of work, but in view of the fact that its members are conducting their work on the lines of individual and competing craftsmen rather than in the masses in which the members of existing trade unions are employed it is difficult to apply the methods which may be suitable for another class. The vast proportion of medical work is done by men who are ploughing a lonely furrow, and who in but the most infinitesimal part of that work ever come into relations of co-operation with any of their fellows.

On the face of things this would not appear to be the most likely method of attaining success as to results in such a highly specialized profession as that of medicine, yet from the views that have been expressed during the fight over the Insurance Act it would appear that this system of "free competition" is very dear to the majority of doctors. "Free choice of doctor" is the battle cry of this large and influential section of the profession, and must remain so as long as the commercialized form of practice at present existent continues. It follows, therefore, that our relations with the public are rather those of shopkeepers than of artisans; hence it is obvious that under present conditions any true union is exceedingly difficult of realization. In any case, as all Dr. Bateman's critics admit, the strike is a difficult weapon for us to wield. Its use by us corresponds to the declaring of a strike against the public by the purveyors of bread rather than to a strike by the working bakers against their employers.

Unless and until a combine of producing or distributing agencies virtually resulted in a practical amalgamation of their businesses it would have but little chance of success. That is to say that it could only succeed by the abolition of competition among its members. Moreover, it is probable that if successful it would, unless strictly moderate in its demands and highly efficient in its action, have to be taken over by the State.

Furthermore, as this individual method of working is much more marked in medical work among the less financially endowed members of the community, there is the further difficulty that it is impossible to raise the price of our labour to what it needs must be to allow of the practice of a really scientific form of medicine. And without State help it is difficult to see how co-operation in the poorer classes of practice is to be secured.

This may seem to be a digression from the main subject of trade unionism, but as there is a widespread feeling of irritation in the profession because of the recent incursion of the State into what we are pleased to consider as our preserves, it is reasonable to presume that many desire this proposed medical combination in order to keep the State from further "interference," and it is, I think, necessary to consider this point.

A closer study of political methods would, I am sure, result in a different conception of the effects of party politics on national control of the Government than seems to exist in the mind of one of your correspondents. The difficulty rather is that, by reason of the apathy of men of our own and similar professions, control is in the hands of a professional Government, let what party there may be in power. I think it probable, therefore, that reform of political methods would remove the objection to State help to medicine. Such a reform would unquestionably be greatly forwarded by the entry into political life of representatives of the medical profession, not as party politicians, but as independent representatives of a great medical union.

To return to the main purpose of this attempt of mine to deal with the question of professional union, I would suggest as the basis of such a union the following points:

1. The securing for the practitioners of medicine of such rates of remuneration and hours of labour as shall leave them time to keep abreast of progress.

2. The replacement of mere commercialized competition in the profession by a real professional and scientific competition, which, by encouraging mutual help and co-operation, will promote efficiency.

3. The advancement of medicine as a science. This, to my mind, embraces the other points.

To obtain these results something different from trade unionism is necessary. For, surely, the main recommendation of the medical provisions of the Insurance Act was that it provided some form of medical attendance, as a certainty, for the industrial classes at what was at all events a higher rate of remuneration than had been secured in the past by any medical organization. And the fact that the union in the medical profession that followed the introduction of the Insurance Bill was practically the first movement of the kind in its history, and was principally directed to a manifestation of opposition to outside interference, not unnaturally laid the profession open to a charge of being simply "out for fees." Had we put our house in order previously, and devised a union for purposes of mutual help in our work, and for giving adequate voice to the opinion of the profession on medical questions of public importance, we should have had a much greater degree of public sympathy.

Even at the risk of being accused of what one of your

correspondents is pleased to call "confusing ethics with sentimentality" I venture to say that the sort of union we want is one that will promote good-fellowship amongst us, not by coercive methods, but by organizing the work of the profession so as to secure to it more leisure through arrangements for taking emergency night and Sunday work in rotation, possibly also by a sickness and pension fund, etc. Time was when I thought coercive measures were the only useful ones, but a short personal experience of organizing work has taught me the superiority of more suave methods.

A union that will offer advantages to its members in times of peace will have a far greater influence with its members than one which pursues a policy of dragooning them into obedience.

When offensive action is necessary it will also take greater pains to secure that its policy is in accordance with its members' views and powers, and rely less on the rights of majorities to coerce minorities. As a consequence its fighting powers will be immeasurably enhanced.—I am, etc.,

Devonport, March 23rd. EDWARD MCCULLOCH.

SIR,—I am astonished at the inconsistent letter from Dr. A. G. Bateman, published in the BRITISH MEDICAL JOURNAL of March 15th. If any man in the medical profession should know the value of co-operation, surely it is the secretary of the Medical Defence Union. Those of us who advocate trade unionism do so, among other reasons, because Parliament has granted certain great privileges to trade unionists that we do not at present enjoy, and we are seeking to obtain these privileges, and at the same time to adopt all that is good, and reject all that experience has proved to be bad, in these organizations. If, in our conflict with the Government last year, we had been united in a strong trade union, with paid whole-time officials and ample reserve funds, we should have won easily without neglecting a single patient; in fact, in the case of a medical trade union, the threat to "down tools" would be out of the question and unnecessary.

Dr. Bateman hopes we shall never "descend to the level of dockers." Personally, after the *débâcle* of last year, I should be ashamed to talk to a docker on the subject of trade unionism. The docker, out of his 18s. a week, pays what is to him quite a large sum to his union, and when a strike occurs, whether he approves of it or not, he stands by his fellows as long as there is a penny in the war chest and as long as he has a garment or a piece of furniture to sell or pawn. We, on the other hand, pay the magnificent sum of 4d. a week to the British Medical Association, apart from the price of the JOURNAL, and when the Chancellor offered his bribe last autumn quite enough men deserted our ranks to enable him to coerce almost all the rest who were engaged in working class practice. Whatever one may think about those who accepted the bribe, one cannot blame those who were coerced. Having no union with adequate funds to fall back on, and no chance of ever regaining their work, how could they be expected to court certain ruin for themselves and their families? The British Medical Association, with its amateur leaders, did wonders with our 4d. a week till it came to close fighting, but

> We was rotten 'fore we started—we was never disciplined;
> We made it out a favour if an order was obeyed;
> Yes, every little drummer 'ad 'is rights an' wrongs to mind,
> So we had to pay for teachin'—an' we paid."

Again, the Medical Defence Union has done most excellent work for many years, although our subscription is only 2½d. a week; but I should imagine that Dr. Bateman would be the last to deny that with the subscription doubled or trebled we might calmly face any legal proceedings under its protection without the latent fear that even if we won our case we might still be heavy losers. Yet Dr. Bateman says that "unity founded on trades union lines would be degrading and derogatory to professional men," and Sir James Barr is reported to have said yesterday at Sunderland that, in his opinion, "trades unionism meant a levelling down and not a raising up of the standard, and the more they encouraged individualism the better for the country." I remember as a boy seeing large brass plates on imposing houses in some of the principal thoroughfares of London, and on these plates, beneath the doctor's name, was the following notice: "Advice gratis." Since then, in a fairly long experience, I have seen keen competition between individualistic medical men to give their advice and visits for nothing in order to sell their medicine for any sum between 2s. and 3d. a bottle. I have known well-qualified men competing eagerly for friendly society appointments where the annual payment per member was only 2s. 6d. Since this is the result of individualism it is high time we tried something else.

A trade union would fix a minimum fee for professional visits and advice, and there would no longer exist in our ranks the peripatetic pharmacist. No maximum charge would be fixed, and thus the man who valued his services at a higher rate might charge what he thought right. Men who felt secure by reason of private means or permanent appointments, and who had so little *esprit de corps* or so much false pride as to stand outside a union of their fellow workers need fear no peaceful picketing, but would certainly be "sent to Coventry" if they accepted a less fee than the trade union minimum. If the British Medical Association does not rise to the occasion we must make up our minds at once to form a proper trade union, though I hope we shall still retain our membership of the old Association, which will then revert to its original form as a scientific body.—I am, etc.,

North Shields, March 15th. F. C. MEARS.

SIR,—Dr. Bateman, in his letter on the subject of trade unionism and medicine, propounds a number of questions based on the assumed action of a medical trade union in a dispute, and supplies the answer, "The idea is monstrous." Every medical trade unionist will agree that any such action as he suggests would indeed be monstrous. But has the possibility of any such action every entered the minds of medical trade unionists? I have no hesitation in saying, Certainly not! The idea of a medical strike against the general public is inconceivable; it holds no place in practical medical politics. On a very different footing stands a strike against a public body, such as the Government. Has Dr. Bateman forgotten the methods by means of which we successfully extorted a large increase of remuneration and many other valuable concessions from the Government? Were not these concessions obtained by the threat that the profession would refuse to do the Government work under the conditions then offered? Had these concessions not been granted Dr. Bateman would have seen the profession "on strike" against the Government.

Dr. Bateman is confusing the aims of trade unionism with the methods employed by certain trade unions—methods which are eminently suitable to the class of men with which they have to deal, but entirely unsuited to the medical profession. Nobody expects that the mere fact of registration as a trade union will, *ipso facto*, mean the future safety of the medical profession. Admittedly, we must have the "unionism" first; having achieved that, we had far better take advantage of the protection and privileges granted by the Trade Union Acts than remain without such protection. I venture to think that only one thing can assure that much desired unity—namely, community of interest, which already exists and is already threatened with attack—I refer to our women and children patients. Already attempts are being made to bring them into the net of contract practice at a most unremunerative fee. The medical profession must see to it that it is not again found unprepared; that in the coming fight (which is nearer, perhaps, than many imagine) we have an organization the sole duty of which shall be to safeguard our professional interests, and the constitution of which shall be suited to the work which it will have to perform. If this organization takes advantage of the degree of protection afforded by registration as a trade union it will, at the least, be the more efficient by that protection than it would be without it.—I am, etc.,

London, E., March 25th. HENRY J. CARDALE, M.B.

SIR,—Dr. A. G. Bateman entirely misapprehends the aims and objects, as the means to an end, proposed by an increasing number of general practitioners who see no

possible way of uniting their fellows for the legitimate objects of mutual protection other than agitating for obtaining statutory powers to govern themselves and to compel minorities to submit to the desire of the majority for the common weal. The legal profession possesses such statutory "protection," to wit, the "Incorporated Law Society." Why, then, should we doctors be denied the similar right of an "Incorporated Medical Society," based on such similar lines as will pertain to the profession of medicine?

There are, no doubt, great difficulties in the way, but I decline to regard them as insurmountable; and if we will take to heart the lesson of our recent ignominious surrender it cannot fail to determine us to close up our broken ranks for the final and successful effort to obtain our professional rights.—I am, etc.,

C. STENNETT REDMOND,
Late Chairman, Manchester West Division.

London, N., March 17th.

SIR,—May I, as one of the originators of this discussion, be allowed a few words more? That the doctors who have had to go on the panels will now need to form some sort of trade union is, it seems to me, self-evident; the latter step is a natural corollary of the first. The only subject which we really need dispute about is whether the British Medical Association is, as I say, to be "commandeered" for this purpose. Now, even if the Articles of Association permitted of this—and it was made quite clear at last year's Liverpool meeting that they did not—we must surely all agree as to the desirability of there being in our midst some big national body whose primary *raison d'être* shall be the advancement of the science and art of medicine.

It is nonsense to suggest that this supreme aim will be brought about by "fighting" anybody. A trade union is certainly based on the assumption that "what is your gain is my loss," and, therefore, fighting is of its very essence; but trade union methods at the present time are only justified as a purely temporary expedient, to keep the profession from complete disintegration. I say boldly that but for our own shortcomings in the past the employment of such artifices would never have become necessary. The cynicism with which certain of our claims have recently been met comes from our so far having failed to impress the public with the fact that we, as a profession at least, are better qualified to heal their aches and pains than are certain other competing bodies. Further, they have grounds for thinking that some of us are moved more by a desire for pecuniary gain than by a pure love of our art. The reinstatement of the profession in the public esteem will certainly not be hastened by the most rigid methods of "organization," nor even by our arming ourselves, in the simile of Dr. S. Wesley Wilson, "with the weapons of the burglar." It can only be brought about by our throwing ourselves—each one of us individually—with more zeal into our work and proving to the people our indispensability, not by words, but by deeds. To attain this end we will be the better of having some common platform on which we can voluntarily meet for mutual encouragement, advice, and help. This platform has been afforded in the past by the British Medical Association, and it is very much to be desired that it will not, at this crisis in our affairs, renounce such a highly important function. Any temporarily necessary trade union activities will be very much better carried out by a body formed *ad hoc*. Two or three such organizations are already springing up in London and elsewhere.—I am, etc.,

Edinburgh, March 23rd. ARTHUR J. BROCK.

OPERATIONS ON CHILDREN IN THE OUT-PATIENT DEPARTMENT.

SIR,—The sphere of usefulness of a children's hospital can be very materially increased by performing major operations in the out-patient department.

The paper by Mr. Nicoll in the JOURNAL on February 22nd, and the subsequent letters of Mr. Andrew Fullerton and Mr. Stanley Green, show to what extent this can be carried out successfully. By so doing, not only is the waiting list kept within reasonable limits, but the wards can be reserved for those cases needing some more serious operation, or where prolonged investigation or rest in bed is required.

In addition, I have found that in the case of infants, admission to the wards may cause serious nutritional disturbance, especially to those who are being breast-fed. For these cases, where the operation is not urgent, one one must wait till they are weaned; or as a better alternative operate on them as out-patients.

During a recent week, in addition to the usual in-patient list, I operated on cases of hernia, hydrocele, depressed fracture of the skull, and meningo-myelocele as out-patients, and I have followed this custom for some time. Local anaesthesia also conduces to the success of this method, and all the above cases except the herniae were operated on under cocaine infiltration. The absence of a general anaesthetic still further diminishes any risk, while the children are able to take nourishment immediately the operation is compteted.

The preparation of the skin by iodine and the sealing of wounds by collodion has greatly simplified this method of treatment.—I am, etc.,

Newcastle-upon-Tyne, March 11th. FREDERICK C. PYBUS.

THE AFTER-EFFECTS OF GASTRO-ENTEROSTOMY.

SIR,—Dr. A. F. Hertz has certain very definite opinions regarding the anatomy and motor functions of the stomach, and they differ greatly from mine. I regret that I was not present at last year's British Medical Association's Meeting to hear his "opening address on the anatomy of the normal stomach." On reading over again the report of the proceedings in the BRITISH MEDICAL JOURNAL of September 28th, 1912, I fail to appreciate that "practically unanimous agreement" was accorded to him by the subsequent speakers.

Many years ago I felt that the anatomy and motor functions of the stomach were not as had been described, and, on reading the late Professor D. J. Cunningham's treatise[1] on the subject, I was convinced that he had come very near the truth as far as the pure anatomy was concerned. I carried out *then*, as Dr. Hertz recommends me to do *now*, a series of observations on what I took to be normal stomachs, and, having consideration to Cunningham's work, came, shortly stated, to the following conclusions:

1. That the stomach shows a more or less dilated, saccular, feebly motile cardiac portion, and a more or less contracted, tubular, strongly motile pyloric portion.

2. That the pyloric portion begins at the incisura angularis of His; its commencement is marked on the greater curvature during, at least, the earlier part of gastric digestion, by a well-marked notch; and that this notch is caused by action of what, for the sake of brevity, I called the "middle sphincter."

3. That, as indicated by Cunningham, there exists along the lesser curvature of the cardiac portion well marked remains of the original alimentary tube, one side of which has "blown out" to form the fundus and large part of the cardiac portion of the stomach; that the action of this rudimentary tube carries food to the lower part of the cardiac portion of the stomach, and, in doing so, sometimes shows modified segmentation.

4. That the pylorus is situated just internal to the gall-bladder, well above and to the right of the umbilicus, and may practically be regarded as fixed.

5. That certain radiographers and others were, therefore, wrong in their ideas as to the position of the pylorus, and therefore in much of their interpretation of what occurred during digestion.

In the course of Dr. Hertz's criticism of my views, during December, 1910, he invited me to go to see Dr. A. C. Jordan's work at Guy's Hospital. This I have been unable to do, but I may refer to the *Archives of the Roentgen Ray* published in January, 1911 (Dr. Hertz collaborated then with the editor of that journal), in which, embellished by numerous illustrations, are two articles, which to my mind confirm my conclusions. What other explanation than that which I give in conclusion 3 can Dr. Hertz give of figures 15, 16, 17, 19, 20, 23, which

[1] *Transactions of the Royal Society of Edinburgh*, vol. xlv, Part 1, No. 2.

illustrate the paper of Dr. E. Ribas y Ribas, of Barcelona? In figure 1, illustrating Dr. A. C. Jordan's paper, the pylorus of what he states to be a normal stomach is "situated behind the umbilicus (marked by a metallic disc)," and the shadow of the metallic disc is well to the left of the middle line as shown by the shadow of the vertebral bodies. Such a position must mean that the first portion of the duodenum had been lengthened by at least 4 in., because there does not seem to be any displacement of the second (fixed) part of the duodenum. I wish that the plate of this excellent skiagram by Dr. A. C. Jordan could be published in the BRITISH MEDICAL JOURNAL, so that unbiassed opinions might be formed. Drs. Maclaren and Daugherty, in the *Annals of Surgery*, September, 1911, state that normally the pylorus is "practically a pelvic organ"! I cannot in the majority of cases, even in abnormal stomachs, displace the pylorus to the level and left of the umbilicus, much less into the pelvis. How many surgeons have found it possible to pull down the pylorus for examination in a mid-line incision which does not reach higher than the umbilicus?

In face of such diversity of view and discrepancy of interpretation on the part of the skilled skiagraphers, I fail to see how Dr. Hertz has arrived at such finality in the matter.

Dr. Hertz's recent paper might be far more convincing and valuable if it did not, as he admits, concern a collection of bad results from a conglomerate of surgeons, in the discussion of which no mention is made of the conditions for which the operation was done, the kind of operation done, or the complications which were present.

One *would* like to know the number of cases on which Dr. Hertz based his paper and formed his recommendations as regards surgical procedure, because, considering the results stated respectively by Messrs. Collinson and Bourne recently in the BRITISH MEDICAL JOURNAL, these recommendations can carry no weight unless backed by a full knowledge of the surgical procedure which preceded the failures which came under his notice.

In advocating drainage of the lowest part of the stomach and the making of a small stoma Dr. Hertz would have us go back to the early days of the operation. Like Dr. Hertz, I am not yet satisfied with my results, but I ascribe such good results as I do have greatly to the avoidance of these points which Dr. Hertz advocates.—I am, etc.,

Aberdeen, March 17th. H. M. W. GRAY.

IMMEDIATE OPERATION IN APPENDICITIS.

SIR,—Mr. Edmund Owen has been good enough, after quoting several extracts from my letter in the JOURNAL of March 1st, in which I deprecated the policy of "look and see," to put a pointed question as to what treatment I advocate in cases of early appendicitis. I thought that I had clearly indicated my views in general terms with regard to that matter in the following statement in my letter: "We are all agreed that definite appendicitis is a surgical disease for several hours after its onset," but now I feel that it is necessary to explain that by "surgical disease" in that phrase is meant "a disease to be treated by manual operations" and that by "we" is meant surgeons.

In other words I am, like every surgeon, an advocate of appendicectomy in early cases of appendicitis. Unfortunately for sufferers, the great majority of the medical profession in every country that I have so far visited for the purpose of learning surgery have not yet got into the habit of dealing with appendicitis as a surgical disease from my point of view. Consequently surgeons, when they are called in, have to decide whether an "immediate operation" should be performed upon the individual case of appendicitis from evidence of the existing conditions, the history of the past treatment, and the circumstances and surroundings under which such cases are found.

The vast majority of cases I see have been ill for some days. These have passed the period of the "surgical opportunity" during which an operation would have given the best chance of saving life.

I think the expression "immediate operation" in the interesting discussion Mr. Edmund Owen raised by its use in his valuable paper has led to confusion.

In one case the term seems to be applied in the sense that the expression "early operation" is used by American surgeons with regard to the onset of the disease, and in the other it bears relation to the time which elapses between the advent of the surgeon on the scene and the performance of the operation, irrespective of the duration or age of the disease.

With the above explanation I would add that I am a firm believer in "early operations," but not in "immediate operations" except when they are early.

The following case well illustrates the point I desire to make. Last year, on a Friday evening, Dr. G. R. Sparrow asked me to see a girl, aged 10 years, who was suffering from a virulent type of early appendicitis. She had vomiting, marked meteorism, pulse 156, temperature 102° F., and was gravely ill. She was the only child, and as her mother's uterus had been removed recently our responsibility was the greater.

Two trained nurses were immediately put in charge of the case, and "the greatest vigilance, the strictest observance of proper non-surgical treatment" were adopted—namely, Fowler position, rigid Ochsner's treatment, drop saline per rectum, morphine gr. ¼ hypodermically, the abdomen splinted, to report by telephone every two hours the condition of pulse and temperature, and instantly to call one if any new symptoms supervened. On the second day the pulse and temperature came below 100°, meteorism disappeared, and the patient was nearly ready for a safe operation. On the Sunday morning a fresh attack of acute perforative appendicitis suddenly set in about 10 a.m. I saw her midday and did appendicectomy within six hours of the recrudescence of disease. The patient got well and was up and about in a few days.

I learnt the value of early operation long ago, but I did not fully realize the many details involved in the life-saving value of "the strictest observance of proper non-surgical treatment" until I had the privilege of spending a few days in Chicago in 1906 and visiting Dr. A. J. Ochsner's surgical clinic.

The importance of this subject impels me to quote facts which speak for themselves. Dr. Ochsner operated upon one thousand (1,000) cases of appendicitis in thirty-three consecutive months, terminating on April 1st, 1904. Out of this enormous experience "fifty-five cases were of the acute perforative or gangrenous type without abscess. Five of them entered the hospital within *forty-eight* hours after the beginning of the attack and were operated at once. *Sixteen* of the remaining cases seemed in a condition making an immediate operation safe and were operated at once." The remaining thirty-four were piloted through the storm until they were placed in what I call dry dock for repairs. "This occurred in most cases within four days after admission, while in others the interval was longer." *These fifty-five cases were all cured.*

The mortality of the total (1,000) was 2.2 per cent., notwithstanding that it included "33 cases entering the Augustana Hospital with diffuse peritonitis resulting from perforative or gangrenous appendicitis," and "of this class *a number were in a dying condition.*"

I must ask to be excused trying to solve the riddle suggested by Mr. Owen in "the case of a boy seized in the night with acute abdominal pains, with tenderness in the iliac fossa and rigid muscles over it, the temperature and pulse being about a hundred," because it is only an assemblage of symptoms, and is not a complete picture of a case upon which I could give an answer without qualifications. If it were an undoubted case of appendicitis, I would not hesitate in certain circumstances to delay the performance of an "early operation" at the patient's home, and would advise his removal to a place where the necessary conditions for safe performance of operations existed. On the other hand, if a doubt existed about the nature of the disease, I would advocate the policy of "wait and see," under certain conditions, rather than adopt that of "look and see," as advocated by Mr. Edmund Owen.

By the adoption of the former policy in my practice very suspicious cases have turned out to be affections of other organs, such as the bile channels, psoas muscle, or right kidney, and the right Fallopian tube in females.

Let us hope that Mr. Edmund Owen's paper will be of use in diminishing the avoidable mortality which now exists through ignoring the fact that appendicitis is a surgical disease.—I am, etc.,

Cardiff, March 24th. J. LYNN THOMAS, C.B., F.R.C.S.

ALIMENTARY TOXAEMIA.

Sir,—I have been interested in the discussion at the Royal Society of Medicine on alimentary toxaemia, but, notwithstanding the number of workers, it will be obvious to every one that the field is yet quite unexplored. Intestinal stasis is a disease of civilization, and is seen at its worst in cities, where the mode of living is largely artificial. As doctors we meet the condition only in human beings, but it is equally common in house pets, such as dogs, cats, etc. It is already a chronic state when noticed by the sufferer, who tries all the advertised cures before he consults his physician. I do not doubt the latter's power to better the condition, but in many cases, owing to carelessness or forgetfulness on the part of the patient, the stasis is soon as bad as ever. But I can hardly follow Mr. Lane in attributing so many other diseases to intestinal toxaemia. Even were the connexion beyond what he calls quibbling, the cure would have to be safe and absolute, for it is an operation of convenience. The mortality would have to be as small as, say, "interval appendicectomy," and the after-results as satisfactory. Ileo-sigmoidostomy is fairly safe, but the after-results are not always satisfactory. Mr. Lane has had to do a colectomy later. Colectomy, as a primary operation, has too big an immediate death-rate, and Mr. Lane admits the usual after-effects of abdominal operations—adhesions, etc. These are often avoidable, unless the strain is too great for both patient and surgeon. At present that is the trouble. The surgeon cannot get the perfect closure of the peritoneum all round that is theoretically desirable. The size of the abdominal wound, and the lengthy exposure of the abdominal contents make an ideal operation impossible for the average surgeon. And it is the average surgeon who will supply the registrar with statistics, not the Lanes.

I am not quite convinced that intestinal stasis is due to Lane's kinks, Jackson's membranes, *et hoc genus omne* of recent discoverers, but there is a large consensus of opinion pointing to the ascending and transverse colon as the part in which stagnation mostly takes place, and from which toxins are absorbed. To remove this area is well within the power of the average surgeon who has experience in abdominal work. It is a safe proceeding, almost as safe as removing the appendix. My own method is to put the patient on the left side as for a nephrectomy. The incision goes from the tip of the twelfth rib to the rectus, midway between the umbilicus and pubis. The peritoneum is incised all along the outer border of the ascending colon, which is freed forward till it is quite outside the abdominal cavity from appendix to beyond the hepatic flexure. This point is easily recognized, as the whole transverse colon will then pull out. The bowel is crushed at the end of the ileum by a broad-bladed enterotome (a broad ligament clamp, with a tubing cover, does quite well), two ligatures are applied, one of thin, easily absorbed catgut on the side to be left, and the other of strong silk on the side to be removed. The same is done at the transverse colon at a point about its middle. Both crushed parts are now divided between the ligatures. The silk ends are brought together and covered up, while the catgut ends are sewn together with a fine gut suture. Two rows of continuous Lemberts invaginate the ileum into the transverse colon in a complete serous covering. The lumen, it will be observed, has never been open, so that the escape of intestinal contents is impossible; and it is this escape usually, and not errors of technique, that is the danger. The excluded portion is now removed, and the area opened up, as well as the end of the mesentery and transverse mesocolon, are brought together. There is left no hole for strangulation and no points for adhesions, and during the whole operation the abdominal contents have not been exposed for a moment, in fact need hardly be seen. Drainage is unnecessary. The catgut ligatures give way without any signs of obstruction, and before any real union has taken place; in fact, they serve the part of the Murphy button without its dangers. The kidney can be dealt with if desirable. I have done this operation on eight occasions—three for malignant disease and five for stasis. There has been no shock, no local trouble, and perfect movement of the bowels. There has been no need to wear a bib at the wrong end, as one of my ileo-sigmoidostomy patients suggested.—I am, etc.,

Dundee, March 16th. ALEX. DON.

PHYSICAL SIGNS OF MYOCARDIAL INVOLVEMENT.

Sir,—Although not attaching so much importance to cardiac graphology as some who contribute to your pages, I venture to make a few remarks on the interesting subject dealt with in your recent issues by Dr. Lewis and Dr. Coombs under the above heading.[1] In the first place, I am glad to note that Dr. Lewis now confidently regards the auriculo-ventricular bundle as a "neuro-muscular strand," a view which he probably would not have expressed with so much assurance not very long ago. I should have imagined it reasonable to suppose that such a conception of the nodal structures which invade the myocardium might have suggested the possibility of such irregularities of action as he describes being at times due to disturbances of cardiac innervation, more especially as it is acknowledged that such cases need present no evidence of anatomical lesions in the "sensitive tract," as Dr. Lewis terms it, while in yet others lesions may be present which have not been associated with dropped beats or delayed ventricular response during life. "The bundle belongs to the myocardium," Dr. Lewis remarks,[2] and an invasion of the bundle, especially when, as is usual, it happens through vascular channels, can hardly occur without the exposure of the remaining muscle." It is remarkable, indeed, that it does not more frequently manifest the anatomical evidences of invasion, being so accessible to injury, as it apparently is, from its subendocardial situation in rheumatic endocarditis. This, however, is no more remarkable a fact than the comparative immunity from valvulitis and endocarditis of the right as compared with the left chambers of the heart in rheumatic infection. As Dr. Lewis's quotation from Professor Aschoff shows, however, invasion of the nodal system does occur not infrequently, although the graphological evidences of such are not always noticeable. This may, of course, be explained from the partial involvement of the structure, just as considerable portions of the larger mass of the myocardium—Dr. Lewis's silent area—may be affected by various conditions without disabling the heart as a whole.

But, while the bundle is a differentiation of mesoblast which originates in the embryo and penetrates the myocardium, as the nerves and blood vessels do, it no more "belongs to the myocardium" than do the latter structures. It is in as intimate relation to the nervous as it is to the muscular system of the heart, and, with all due respect to those who think otherwise—and I willingly concede they are in a majority at present—I hope I may without presumption be permitted to remark that I think its functions even now are not so clear as some would have us believe. As we are now quite certain that it is a "neuro-muscular strand," and were not in a position to be so comparatively recently, is it not just possible that we may in time modify our conceptions of the functions at present assigned to it? Not only do I believe this to be possible, but even probable, for even its anatomy requires further investigation.

Both Dr. Lewis and Dr. Coombs are disposed to regard chronic myocardial disease as due to a series of what our Teutonic brethren would term bacterial "insults." That is, that the heart, as Dr. Coombs puts it,[3] is "reinvaded from without by new batches of micro-organisms." As Dr. Lewis truly remarks:

> How many young girls come to us with advanced mitral stenosis and degenerate heart muscle, and relate the story of a single mild attack of chorea or rheumatic fever! Yet mitral stenosis does not develop during one attack of either; the advanced lesion is one which has evidently taken a long while making.

Does Dr. Lewis, then, suggest that repeated attacks of mitral valvulitis are necessary to the production of an ultimate stenosis? If this be his intention, I think it will be difficult for him to adduce proof to maintain his thesis. I should go even farther than he does, and state that both men and women appear before us in the condition he refers to, who have no knowledge of having ever suffered either from chorea or rheumatic fever. Nevertheless, since the date of such an attack "a long while" ago, and proved on necropsy to have occurred, the subject has lived, and the heart worked at some mechanical disadvantage, the products of a distant inflammatory lesion

[1] British Medical Journal, March 8th and 15th.
[2] British Medical Journal, March 8th, p. 488.
[3] British Medical Journal, March 15th, p. 585.

cicatrizing and muscular texture degenerating from altered nutrition and perpetual labour effected with a handicap. I do not require to be informed that such a view has not the sanction of a new "school" of thought in such matters, the views of which *should*, if they do not obtain permanent acceptance, when regard is had to its vigorous propagandism and ingenious advocacy by crisp and confident exponents.

By these remarks I in no way desire to rob the myocardium of its long acknowledged importance in the mechanism of the circulation, but I hope I do Dr. Lewis no injustice when I state that he appears to me unduly to depreciate the consequences of inflammatory disease and deformity both of the valves and pericardium. May not his admittedly transient "block" signs of myocardial involvement be neural interferences with conductivity which do not necessarily indicate myocardial lesion of even a fleeting nature? We know how difficult it is experimentally to induce heart-block without complete division of the common stem of the so-called auriculoventricular bundle, and how insistent some myogenists have been that undisturbed ventricular action, in the presence of disease of the bundle, merely indicates that the structure has not been completely involved. Under these circumstances it is difficult to accept a little congestion of the bundle, even in the presence of dropped beats and other clinical evidence of heart-block, as the essential cause of the phenomenon. The value, therefore, of such a sign in itself, as an indication of myocardial involvement in infectious disease, seems at least questionable.—I am, etc.,

London, W., March 24th. ALEXANDER MORISON.

RECENT ADVANCES IN THE DIAGNOSIS, PROGNOSIS, AND TREATMENT OF HEART DISEASE.

SIR,—In 1911, as Chairman for the year of the Folkestone Division of the British Medical Association and Folkestone Medical Society, I invited Dr. Price to give an address on cardiac disease to the members. He kindly came down on November 2nd of that year and gave us an address. I was in the chair on that occasion, and in his discourse Dr. Price enunciated the theory and practice of modern heart therapy and described very carefully and defined the extra-systole, etc. Dr. Price explained that he could not publish his lecture then as he was going to give it in other places.

This lecture is the only one I have heard, and Dr. Mackenzie's work on the heart is the only medical work I have read on modern heart theories. When I read Dr. Price's Toronto address[1] it was at once apparent to me that it was the same address he had delivered to us at Folkestone.

I remember quite well some of the phrases Dr. T. Lewis quotes out of this address. If I looked at these things in Dr. Lewis's way I should certainly have considered, had I read his book published in the spring of last year, that his information was derived from these two sources named. I cannot suggest that Dr. Price about a year and a half ago copied information from a book only published about twelve months ago.

It is sufficient for any one reading Dr. Mackenzie's works to judge how very many similar phrases occur in Dr. T. Lewis's book. I take it one must use correct definitions, symptoms, and terminology in describing the same set of ailments, and naturally the same things occur to all accurate observers and must be stated in similar terms. The affinity of great minds is proverbial.—I am, etc.,

Folkestone, March 22nd. LENNOX WAINWRIGHT.

SIR,—In his letter appearing in the last issue of your JOURNAL, Dr. Price mentions that so long ago as early in 1911 I was cognizant of the text of the address he delivered before the Toronto Academy of Medicine in October of last year. This statement I confirm.

I feel some explanation of the circumstances under which the paper came under my notice is called for from me. Some time about the end of May, 1911, I was asked by Dr. Hawthorne, the Chairman of the Polyclinic, to give a course of instruction there on modern methods in heart disease. I understood Dr. Mackenzie had mentioned me as one likely for the work. At the time I was not aware Dr. Price was the appointed lecturer for this course, but was unable to act because of illness.

Subsequently Dr. Price wrote to me on the matter, and forwarded for my guidance the typescript of the lectures he had purposed giving. I made no use of the paper, as I considered it better to adhere to the syllabus of my previous classes.

I read Dr. Price's paper carefully, and I can vouch that the subject was dealt with substantially in the same manner and order as in his recent address, but at greater length. I cannot, however, remember particular phrases, niceties of diction, or the order of words used in describing facts. The only paragraph of the paper I recall is that relating to pulsus alternans, in which I am greatly interested. I noticed that this pulse rhythm was described as being often difficult or impossible to detect by the finger, except at times when alternation was continuous.

I was under the impression that this was my copyright, and flattered myself Dr. Price had probably troubled to read a paper of mine in the *Lancet* incidentally dealing with this subject; but I found this was unlikely, and concluded that, perhaps after all, this and most other statements of fact in the paper were derived from the source from which all writers so far have had to draw so freely. No one has yet worked long enough to revise from his own experience all the observations in Dr. Mackenzie's classical writings.—I am, etc.,

Southall, W., March 21st. J. D. WINDLE.

SIR,—I am glad to confirm Dr. Price's letter of March 17th. I had the pleasure of listening to his lecture at Brighton in October, 1911, and when I read his Toronto address I was surprised to find nothing which I had not heard before. To refresh my memory, I have looked up the notes made by the honorary secretary of our society; they begin with a mention of aconite and finish with $\frac{1}{100}$ of a grain of strophanthin intravenously. It is more than probable that Dr. Lewis and Dr. Price have both unconsciously adopted the phraseology of Dr. Mackenzie, the one great master of modern cardiology.—I am, etc.,

Brighton, March 23rd. WALTER BROADBENT.

SIR,—I have read the correspondence in your JOURNAL concerning Dr. Price's address at Toronto last year. Dr. Lewis appears to think it was written after his book was published. I do not know the exact date of the publication of Dr. Lewis's work, but on reading Dr. Price's address in the JOURNAL of March 8th I at once recognized it as having been delivered at the Polyclinic on February 28th and 29th, 1912. More than twelve months having now elapsed, I cannot remember all the words and phrases to which Dr. Lewis has drawn attention. However, I distinctly remember some of the passages which Dr. Lewis has italicized—not every word, though very nearly so—and of course the meaning conveyed was identical.

It appears to me only right, under the circumstances, to state those facts.—I am, etc.,

London, W., March 22nd. JAMES CHUTE.

MEDICAL ILLUSTRATORS.

SIR,—I have nearly finished a volume on *Medical Men as Illustrators*, for I found that scanty credit had been given to many such either in the early folios or in the modern works—indeed, very often no mention was made at all.

I am giving a short life of each man, also his portrait and a specimen or two of his work. This was easy with regard to the earlier writers, as I have been a collector of first editions of medical works for the past thirty years, but I have some difficulty in getting portraits of such men as McClise, H. V. Carter, J. Howship, etc.

I would be most grateful for new names for my list, also sources where the human side of the man is given in biographical or autographical form. Curiously, near relations seem the least able to supply such details.—I am, etc.,

HOWARD A. KELLY, M.D.

Baltimore, Maryland, U.S.A., March 14th.

[1] BRITISH MEDICAL JOURNAL, March 8th, 1913, p. 477.

Obituary.

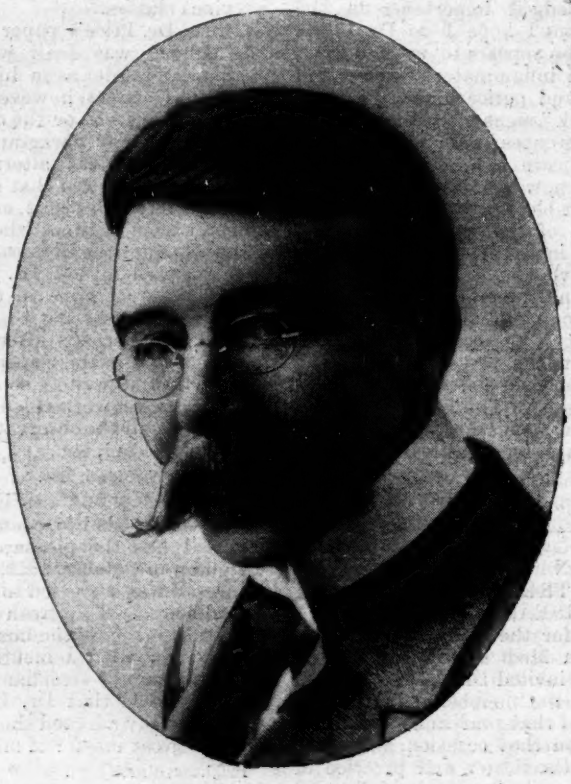
ARTHUR JOHN WALLACE, M.D.EDIN.,

ASSISTANT LECTURER ON GYNAECOLOGY AND OBSTETRICS, UNIVERSITY COLLEGE, LIVERPOOL.

WE regret to announce the death of Dr. Arthur J. Wallace, of Liverpool, which took place, after a short illness, at St. Annes-on-Sea on March 16th.

He was the eldest son of the late Professor John Wallace, and was born at Dalston in 1867. He was educated at the Liverpool Institute, and pursued his medical curriculum partly in Liverpool and partly in Edinburgh, at which latter University he graduated in 1889. He was then appointed on the resident staff of the Liverpool Royal Infirmary, and later to the Holt Scholarship in Anatomy and Surgery at University College, Liverpool. At the close of his term of office he proceeded to Paris and Berlin to study gynaecology in those cities. On his return he was appointed to the post of demonstrator, and later to that of assistant lecturer in gynaecology and obstetrics at University College, Liverpool.

For the last fifteen years he had held the post of honorary surgeon to the Hospital for Women in Shaw Street, Liverpool, and for the same period had served on the honorary staff of the Maternity Hospital in Brownlow Hill, Liverpool. He was one of the Honorary Secretaries of the Section of Gynaecology and Obstetrics at the annual meeting of the British Medical Association in Liverpool last year. He was a member of many learned societies, and in 1908 was elected president of the North of England Obstetrical and Gynaecological Society. A few weeks ago he was appointed honorary consulting gynaecologist to the Royal Southern Hospital.



ARTHUR JOHN WALLACE.

He contributed several papers to the *Transactions* of that society, to the *Journal of Obstetrics and Gynaecology*, and to the *Lancet*. He was the author of an essay on the *Treatment of Pregnancy complicated by Operable Carcinoma Uteri*, and of a *Syllabus of Midwifery for Midwives*. He had a wide reputation in his speciality both in this country and on the Continent. His work was sound and scientific, his judgement and opinion of the highest, and, combined with his skill as an operator, gained for him a distinguished position in his profession.

His unexpected decease in the prime of life and professional career came as a sad surprise to all who knew him. His loss will be keenly felt by a large circle of friends and professional brethren, to whom he had greatly endeared himself. Dr. Wallace leaves a widow but no family.

Prior to private cremation at Anfield, a service was held on March 20th at St. Mary's Chapel for the Blind, Hardman Street, conducted by the chaplain, the Rev. T. W. M. Lund. In addition to the chief mourners, there was a numerous assemblage, including representatives from many hospitals and societies, members of the medical profession, and other friends, which manifested the high esteem in which Dr. Wallace was held by all in the city.

J. J. KIRK DUNCANSON, M.D., F.R.C.P.E., F.R.S.E.,

LATE SURGEON, EYE, EAR, AND THROAT INFIRMARY, EDINBURGH.

By the death of Dr. Kirk Duncanson at Gullane, on March 12th, a familiar and much respected figure has been removed from the medical profession in Edinburgh.

He was born near Dunfermline, and educated at Dollar Academy and the Edinburgh Institution. He spent a short time at engineering after leaving school, but soon turned his attention to medicine, and his advent as a student was welcomed by former schoolfellows and friends. Among the latter, his most intimate associate was David Ferrier, now Sir David Ferrier, who had just returned from Heidelberg, whither he had gone with two double firsts in arts after a brilliant career at Aberdeen, and completed his medical curriculum in Edinburgh. The present writer was often in their company, and can recall many happy evenings spent in their society. Duncanson was an enthusiastic botanist and Ferrier was a keen physiologist, and even then, with deep philosophical knowledge, discussed with profound criticism Professor Hughes Bennett's views on localization of function in the brain. It is interesting to remember that Ferrier treated his first case of rheumatic fever with half-drachm doses of bicarbonate of potash—sound therapeutics even in these advanced days. Space forbids the writer to enlarge too much, but the temptation to picture Duncanson's environment as a student is irresistible: Balfour, Playfair and Allman, Hughes Bennett, Goodsir and Spence, Christison, Laycock, Simpson, Maclagan and Henderson in the university; Sanders, Begbie, Haldane, Crum Brown, Grainger Stewart, and Littlejohn, in the extra-mural school. Sir William Turner became Professor of Anatomy in 1867, the year before Duncanson graduated, but he had practical charge of the department for some time before that. Among the juniors, T. R. Fraser, Dyce Duckworth, W. Rutherford, Annandale, Joseph Bell, John Chiene, John Wyllie, and Lauder Brunton, were at the commencement of brilliant careers. Prominent men of his year were Ferrier, Russell, Halliday Croom, and Byrom Bramwell.

Duncanson graduated in 1868, and spent some time in Heidelberg studying gynaecology, and then went on to Vienna, where he made a special study of the ear. Returning to Edinburgh, he graduated M.D. in 1871, and became a Fellow of the Royal College of Physicians in 1874. He was also a Fellow of the Royal Society, Edinburgh. He acquired a good general practice, but afterwards devoted himself to diseases of the ear and throat, and after acting as Assistant Surgeon to the Eye and Ear Infirmary, under Mr. Benjamin and Dr. Joseph Bell, for some years, he became Surgeon to that institution. He did not make many contributions to medical literature.

Dr. Duncanson was a man of very retiring and unassuming habits. His hobbies were chiefly golf, long country walks, and botanical excursions. He was often to be met on the Queensferry Road or Ravelstone Dykes in the afternoons, with a Skye terrier and spaniel who were his faithful companions. He was a staunch friend, and did many kindnesses to his poor patients. He had been in bad health for several years before his death. He leaves a widow but no family. *Requiescat in pace.*

PHILIP FRANK, M.D.BERLIN, F.R.C.P.LOND..

FORMERLY OF CANNES.

THE death of Dr. Philip Frank in his 83rd year has not only terminated the career of one of the most distinguished physicians of the last generation, but has stirred very deep feelings of personal loss among countless friends in all walks of life. His experience of life was unusually varied, and, combined with very high ideals, served to enlarge its horizons in all directions. In his earlier experiences in Berlin, where he studied and graduated M.D. in 1853, he was intimately associated with the great spirits of the time who played the most important part in that renaissance of German medical and surgical science which has brought it to its present proud position. While assistant to B. v. Langenbeck at the Berlin University Klinik, he became intimately acquainted with Billroth, Volckmann, Gurlt, Virchow, and others of that galaxy of talent who banded together to reform the then deplorable conditions which obtained in medical and surgical practice, and who, reaching out in all directions for fresh inspirations, were at a later date among the first to recognize and acknowledge the great genius of our own Lister and what his teaching meant for humanity. He became a Member of the Royal College of Surgeons of England in 1856, and that year he entered the Army Medical Service. In it he still further enlarged his knowledge of men and disease in Malta, South Africa, and India, whence he was invalided home in 1859. In that year he became a Member of the Royal College of Physicians and was elected a Fellow in 1871. After 1859, he worked again in Berlin, and later was assistant to Professor Longmore in the Army Medical School. He then spent three winters in Madeira and two in Mentone as medical attendant on Lord Brownlow, and practised in the last place until the spring of 1868; then in Cannes. From August, 1870, to the spring of 1871 he served with the Anglo-American Ambulance in the Franco-German war and took a very active share in treating the sick and wounded in and around Sedan. From 1871 to 1898 Dr. Frank practised in Cannes, where he enjoyed a really great reputation and became the close and valued friend of many notable personages of all nationalities.

Throughout his career Dr. Frank was carried along by a wide sympathy and the realization of the necessity, not only of keeping himself abreast of the times in medical and surgical science, but also of studying men of all conditions and of every nationality. In all this he was aided by his linguistic powers, which were of a high order, and by an intelligence which he cultivated in every way. He was early influenced by the fresh impetus given to science by the men of the Continental schools among whom he worked, and seemed to experience a generous exultation in the achievements of every honest worker, no matter what his nationality. His broad and cultivated mind, with its tender reverence for all goodness, recognized the brotherhood of medical men even in lands sundered politically, and the respect that was due from each to all. This spirit was kept fresh up to the very last. After he retired from practice in 1898, and went to live in Kensington, he was a constant attendant on the medical and surgical practice of our hospitals, and year after year, until quite recently, was a most inspiring visitor in the wards and operating theatres to many of the younger teachers. Nothing could exceed the modesty of his quiet comments and inquiries, but they constantly opened up new lines of thought and stimulated increased effort.

Those of us who were privileged to know Dr. Frank intimately were favoured by the friendship of a most retiring and high-minded gentleman of wide culture and the largest sympathies, "who spoke no slander, nay, nor listened to it," who was generous by nature, generous of his acquired knowledge and experience, and also in more material ways, of which he would be the last to wish any one to speak. The keynote of his being was duty in its widest meaning, and his cheerful life and end seem to answer Coleridge's question very fully:

> What would'st thou have the good great man obtain?
> Riches or honour or a gilded name,
> Or throne of corpses which his sword hath slain?
> Hath he not always treasures, always friends?
> Three treasures—Love and Light
> And Calm Thoughts, regular as infant's breath;
> And three firm friends, more sure than day or night—
> Himself, his Maker, and the Angel Death.

For, indeed, Death was kind to Dr. Frank, and came swiftly and without pain to body or mind while he still thought clearly and felt warmly.

HENRY W. COLEMAN, M.R.C.S. L.R.C.P.EDIN.,

LEEDS.

IT is with great regret that we have to record the death of Mr. Henry Coleman, which took place at his residence in Leeds on March 18th. Mr. Coleman was born at Pontefract, where his father was town clerk and registrar of the county court and where the position of town clerk was also held by his brother and by his grandfather. He was educated at the Pontefract Grammar School and at Cheltenham. He afterwards entered as a student of the Leeds Medical School, being a pupil of the late Mr. Wheelhouse, and took the diplomas of M.R.C.S.Eng. in 1870 and of L.R.C.P.Edin. in 1874. He became one of the residents at the General Infirmary, and was on the resident staff at the time that the work of the institution was being transferred from the old building in Infirmary Street to the present building, and the writer has often heard him refer to the fact that it fell to him to admit the first patient to the wards. He then became associated with the late Mr. Rickards, of Armley, whom he succeeded in practice in that part of the town. For many years there was no better known practitioner in Leeds than Mr. Coleman.

He was a strenuous worker, and a great favourite with his patients, among whom he was able to number many personal friends. Some years ago he retired from practice, and was succeeded by one of his former assistants, Dr. Alexander. At this time he gave up most of his public appointments, including those of Medical Officer of the Bramley Workhouse, and Medical Officer and Public Vaccinator for the Armley and Wortley District of the Bramley Union. The position of Certifying Factory Surgeon of the West Leeds District he retained till quite recently. A strong churchman and a keen politician, he took a great interest in public affairs, and was for some time chairman of the West Leeds Conservative Association. He was on the Commission of the Peace for the city of Leeds, and in this capacity was a very regular attendant on the Bench. By all who knew him Mr. Coleman will long be remembered as a man of great geniality and of true kindness of heart. He was always ready to help his juniors in the profession, and the writer can call to mind many acts of true kindness to himself and to others. He was full of amusing reminiscences of the older days of the infirmary and school, and his good-natured mimicry was a source of entertainment to the principals themselves and to those who knew them.

He was laid to rest at Pontefract, and the funeral was attended by a large number of those who were associated with him in his professional life, and who desired to pay the last tribute of respect to one who was regarded with affection by all. He was 66 years of age, and is survived by his widow and daughter.

SURGEON-GENERAL H. SKEY MUIR, C.B.

THE older officers of the Army Medical Service will realize with regret that they have lost another old friend in Surgeon-General H. Skey Muir, C.B., who died at his residence in London on March 6th in his 72nd year.

Henry Skey Muir, having first matriculated in 1859 at the London University, proceeded to Glasgow, where he passed two medical sessions. He entered Guy's Hospital in 1861, and these two schools therefore share the education of this distinguished medical officer. He took the M.D. degree at Glasgow in 1863, and later the diploma of M.R.C.S.Eng.

He entered the Army Medical School at Netley in 1864 shortly after the removal of that school from Fort Pitt, Chatham. On completion of the probationary period there he was posted to Nova Scotia, and subsequently was gazetted assistant surgeon to the 6th Foot (now the Royal Warwickshire Regiment), in which he served until 1877. Promotion to surgeon-major came in 1876, and the next year he proceeded to India. This tour of service included the second Afghan war, in which he served. One of his experiences in this campaign was the march of the Kandahar column under Sir Donald Stewart up to Kabul.

His services gained him the distinction of a mention in dispatches.

He passed afterwards a sufficiently varied career, during which he visited the West Indies and the Cape, performed a second tour of Indian service, holding charge of the important military hospitals at Lucknow and Aldershot and the appointments of Principal Medical Officer of the North-Western District and of a district in India during a third tour in that country. In 1897 he became Principal Medical Officer in Egypt, where, although he did not accompany Lord Kitchener's expedition up the Nile, he was responsible for the medical organization and arrangements of the British troops engaged. After thirty-four years of service he was selected for the appointment of Deputy Director-General of the Army Medical Service at the War Office. He held this post during the strenuous times of the late war in South Africa, and, although he reached the age limit on October 4th, 1901, he was retained in his appointment until the end of that year, when he was succeeded by Sir Alfred Keogh. At that time he was also a member of the Central British Red Cross Committee, which rendered such valuable aid to the sick and wounded in the Boer war. In 1900 he was created a C.B.

Besides his military services Surgeon-General Skey Muir devoted much of his spare time to the study of a branch of science other than his immediate profession, and became a Fellow of the Zoological Society. Like many of his brother officers, he found relaxation by diverting his mental activities into another channel.

Thus was passed a long career of usefulness, which, though it did not culminate in the highest office open to the army medical officer, yet illustrates the varied experiences and responsibilities successfully carried out by a highly capable, courteous gentleman.

ON March 8th the death occurred of Dr. JOSEPH BRADLEY, Medical Officer of Gortin Dispensary District of Omagh Union. While out on a sick call a short time ago Dr. Bradley became suddenly ill, and was found to be suffering from appendicitis. He was removed to the Tyrone County Hospital in his motor car and an operation was performed, but unfortunately complications set in which proved fatal. He was much respected in the district, and only a few months ago, on the occasion of his marriage, was presented with an illuminated address by the people of Gortin and Greencastle.

IT is with feelings of deep regret that we record the sudden death of Dr. F. G. GRAVES on March 2nd. Dr. Graves received his medical training at the London Hospital, where he held the post of resident medical officer. In 1857 he took the diploma of M.R.C.S., in 1858 that of L.S.A., and in 1859 the degree of M.D.St. Andrews. For over fifty years Dr. Graves had practised in Paddington, where he was a well-known figure, and by his genial and kindly manner, together with his professional skill, had endeared himself to all with whom he came in contact. His sudden death will be keenly felt by his many friends and patients. He leaves his eldest son to carry on his practice.

THE late Dr. PETER ANDERSON, who died at Rose Villa, Stanley, Perthshire, on March 12th, was known amongst his friends as "Anderson of Formosa." He deserved the name, for he worked as a medical missionary for thirty-one years in that far-off island, for twenty-five years in the capital, Tainan, and for six in Takow. He was born more than sixty years ago in Perth. He began his medical studies in Edinburgh, under the aegis of the Edinburgh Medical Missionary Society, in 1874. He took the diploma of L.R.C.P. and L.R.C.S.Edin. in 1878, and sailed for Formosa as a missionary of the English Presbyterian Church in the same year. His chief work was done in Tainan before the Japanese occupation of the island; after that event Tainan so increased in size that, to use Dr. Anderson's own words (in a letter to a friend) he was glad when an opportunity came to exchange his responsibilities there for the smaller sphere at Takow. In 1906 Dr. Anderson brought his wife home to Scotland, but she was then suffering from a fatal affection, and died soon afterwards. He himself came home in 1910, and had lived since then in Stanley. He married a second time, and leaves a widow and several children. He was buried in Redgorton Churchyard on March 15th. Always a modest man about his own achievements. Dr. Anderson has left his mark upon the natives of Formosa, and the Japanese were among the first to acknowledge the beneficial effects of the medical missionary work accomplished by him in Tainan.

Universities and Colleges.

UNIVERSITY OF OXFORD.

Course for the Diploma in Ophthalmology.

THE annual course for the Diploma in Ophthalmology begins on April 21st. There will be a series of lectures on diseases of the eye and on medical ophthalmology, as well as clinical instruction at the Eye Hospital. Courses on bacteriology of the eye and pathology will also be held. Instruction in physiological optics is given at the Physiological Laboratory, and on the anatomy of the eye in the Anatomical Department at the Museum. For information apply to the Assistant Registrar, Oxford University, or to Mr. P. H. Adams, M.A., Margaret Ogilvie Reader in Ophthalmology, 53, Broad Street, Oxford.

UNIVERSITY OF GLASGOW.

INCLUSIVE FEES.

AT the meeting of the Glasgow University Court on March 13th, a report was submitted by the committee recommending that the inclusive fee for the specified courses of instruction for the M.B. and Ch.B. degrees be 90 guineas payable in four annual instalments of 20 guineas and one instalment of 10 guineas. The inclusive fee would admit to thirty of the specified graduating courses. A candidate who had paid one or more of the annual statements of the inclusive fee at one Scottish university, and completed his curriculum in another, would pay the remainder of the annual instalments to the latter university, and would be entitled to attend such further graduating courses therein as with those already attended in the former university would make up the stated number. It would be necessary that the amount of at least two annual instalments should be paid to the university in which he completed his curriculum, and that before he received his degree therein he should present evidence that he had paid in all an amount equal to the inclusive fee. A candidate whose attendance elsewhere than at a Scottish university on courses of instruction in all the subjects of the first division of the professional examination had been accepted by the Senatus as qualifying for graduation would be entitled to a deduction of 25 guineas from the inclusive fee; and a candidate whose attendance on courses of instruction in all the subjects of the first and second divisions of the professional examination had been so accepted would be entitled to a deduction of 50 guineas from the inclusive fee.

Principal Sir Donald MacAlister explained that, owing to the clinical courses being under the control of other bodies than the university, it was impossible meantime to suggest a uniform clinical inclusive fee. The present aggregate was one of 27½ courses for 90 guineas, so that by giving 30 courses for this sum the university gave a bonus of 2½ courses, and the student stood to gain this. The extramural students were as free as the intramural students to take advantage of the educational bonus, and therefore nothing was done to interfere with the present freedom.

After a discussion during which Sir David M'Vail objected to the principle of a medical inclusive fee, a motion was carried instructing the committee to confer with the authorities of the extramural schools in Glasgow on the scheme now laid before the court, and to report.

VICTORIA UNIVERSITY OF MANCHESTER.

THE following candidates have been approved at the examinations indicated:

FIRST M.B., CH.B. (*Part I, Inorganic Chemistry and Physics*).—F. H. Anderson, Mercy D. Barber, W. T. G. Boul, C. F. J. Carruthers, C. G. Carson, Ruth E. Conway, G. E. Hayward, N. Kletz, E. N. P. Martland, A. B. Platt, J. Shlosberg, H. Taylor, H. Tomlinson, F. White. (*Part II, Biology*).—J. H. Albinson, R. J. Allison, F. H. Anderson, Mercy D. Barber, W. T. G. Boul, C. F. J. Carruthers, C. G. Carson, B. W. Conway, Ruth E. Conway, G. E. Hayward, N. Kletz, E. N. P. Martland, F. H. Moor, R. S. Paterson, A. B. Platt, J. Shlosberg, D. M. Sutherland, H. Taylor, H. Tomlinson, F. White.

SECOND M.B., CH.B.—M. C. Paterson.

THIRD M.B., CH.B. (*General Pathology and Morbid Anatomy*).—W. S. Booth, J. E. Brooks, *F. Chadwick, F. S. Charnock, J. W. Craw, N. H. Davison, J. Fielding, W. Halliwell, E. A. Linell, *Clara A. Lomas.

* Passed with distinction.

D.P.H.—P. Benington, D. I. Connolly, W. G. Evans, N. Gebbie, G. Jessel, R. C. Hutchinson, R. Proudfoot.

Ashby Memorial Scholarship.

The Ashby Memorial research scholarship in the diseases of children has been awarded to Mr. John Morley, M.B., Ch.M., F.R.C.S., who will carry out researches with regard to certain congenital abnormalities and their clinical significance. Mr. Morley, who received a scholarship when he graduated in 1908,

afterwards held the Professor Tom Jones memorial surgical scholarship.

Appointments.

Dr. E. B. Leech has been appointed assistant lecturer and demonstrator in materia medica and therapeutics, and Mr. T. Graham Brown, M.B., B.S., a Carnegie Fellow who has recently been working under Professor Sherrington at the University of Liverpool, has been appointed lecturer in experimental physiology.

UNIVERSITY OF LIVERPOOL.

A CHAIR of Regional Surgery has been established, and Mr. W. Thelwall Thomas has been appointed professor.

UNIVERSITY OF BRISTOL.

THE following candidates have been approved at the examination indicated:

M.B., CH.B. (*Second Examination*).—Hilda Kate Ewins, William George McKenzie, Cedric Norman Vaisey, Guy Richard Penny Wookey.

UNIVERSITY OF BIRMINGHAM.

DR. ALFRED H. CARTER has resigned his Professorship of Medicine after being connected with the Birmingham Medical School for about thirty-five years.

Dr. Henry Whitehead, M.D., D.P.H., Medical Superintendent of the City Hospital, Lodge Road, has been appointed Clinical Teacher in Fevers and in Hospital Administration.

Dr. John T. Hewetson, M.D., Ch.M., F.R.C.S., has been appointed Assistant to the Chair of Midwifery and Diseases of Women.

In connexion with the meeting of the British Association in Birmingham in September next, the council will hold a reception and degree congregation in the Great Hall of the Edgbaston buildings on Thursday, September 11th.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved in the subjects indicated:

SURGERY.—†E. C. Banks, *†A. C. Dickson, *†R. G. Maglione, †H. Rimington.
MEDICINE.—†E. C. Banks, †O. W. D. Steel, †S. Zarchi.
FORENSIC MEDICINE.—F. C. M. Gabites, G. F. Malden, C. E. Reckitt.
MIDWIFERY.—S. H. Andrews, L. B. Clarke, T. H. Cresswell, P. R. Cross, H. Dudley, T. B. Paul.

* Section I. † Section II.

The diploma of the Society has been granted to Messrs. E. C. Banks, R. G. Maglione, H. Rimington, and O. W. D. Steel.

Public Health AND POOR LAW MEDICAL SERVICES.

OUTBREAK OF TYPHOID FEVER AT RINGWOOD.

IN the BRITISH MEDICAL JOURNAL for March 15th reference was made to the report to the Local Government Board by Dr. Hugh A. Macewen, upon an outbreak of typhoid fever which occurred in the town of Ringwood in the autumn of last year, in which seventy-seven persons were attacked and five died. We have received a communication from Mr. Howard Tozer, vice-chairman of the Ringwood Rural District Council, in the area of which the town of Ringwood is situated, enclosing a long report from the medical officer of health, Dr. Charles E. Blackstone. In both of these documents certain statements made by Dr. Macewen are traversed, and objection is taken to the conclusions he has drawn. The main points at issue appear to be as to the cause of the outbreak, as to the attitude of the district council with regard to it, and as to the sanitary administration of the district generally. Dr. Macewen stated in his report that it was suggested that locally manufactured ice-cream might have been the infective agent, and that there was a certain amount of evidence to give colour to the suggestion. He seems to have made careful investigations into the possibility of this being the case, but eventually came to the conclusion that ice-cream was not so likely a cause as the drinking of water from the Cockstone stream which courses through the town. Dr. Blackstone, on the other hand, gives some very good reasons for concluding that a particular supply of ice-cream was the main factor in causing the outbreak. On the question of sanitary administration of the district, Dr. Macewen stated he had been informed on good authority that privy buckets had been washed by the district council's men in Cockstone stream on August 1st, and that the contents were on at least one occasion thrown into the stream instead of being taken to the cart and removed in a proper manner. He referred also to the absence of any hospital accommodation for infectious diseases, though Dr. Blackstone is able to show that a temporary hospital was opened in a disused farmhouse within a fortnight of the receipt by him of the first notification of any case. In this connexion, Mr. Tozer states that very considerable efforts had been made in the past by the district council to provide an isolation hospital. Plans had been drawn and a site selected, but the residents near the site protested so strongly that another site had to be sought, only with a like result. The council, he says, then undoubtedly weakened in its purpose because of local opposition, and allowed the matter to stand over for a time. We are glad to learn from Mr. Tozer that Dr. Macewen was mistaken in his impression that the members of the district council were reluctant to realize the gravity of the outbreak. He assures us that from the very first moment it was reported to the district council they took a serious view of it and neglected no step recommended by their advisers.

Medical News.

A MEETING of the newly-formed British Oto-Laryngological Society will be held at the rooms of the Medical Society of London, Chandos Street, W., on Thursday next, at 5 p.m.

THE Harveian Society of London has arranged for its annual Harveian lecture to be delivered on April 10th, at 8.30 p.m., by Dr. A. P. Luff, who will deal with the various forms of fibrositis and their treatment. All members of the medical profession interested in the subject are invited to be present. The society's home is at the Stafford Rooms, Titchborne Street, Edgware Road, W.

BY an Order in Council dated March 14th the term "sulphonal" in Part II of the Schedule to the Poisons and Pharmacy Act has been replaced by "sulphonal and its homologues whether described as trional, tetronal, or by any other trade name, mark, or designation." In the same order diethyl-barbituric acid and allied bodies whether described as veronal, proponal, medinal, or by any other trade name or designation, and all poisonous urethanes and ureides, are added to the schedule.

ON March 22nd Dr. Church, who has been in practice in Minchinhampton for nineteen years, and is shortly leaving for British Columbia, was presented with two silver entrée dishes bearing the inscription, "Presented to Dr. B. E. Church by the people of Minchinhampton, Gloucestershire, in remembrance of their affection for him, March 22nd, 1913." The gift was accompanied by an illuminated album containing the names of the subscribers.

THE sixth and last of the Galton Laboratory lectures on national eugenics was delivered by Professor Karl Pearson at University College, London, on March 18th. He gave an interesting account of some recent studies of heredity in dogs, which, he said, proved once more the fallacy of Mendelian theories. Experiments in breeding and interbreeding different types of dogs showed that no hard and fast rules could as yet be laid down to account for the laws of heredity. The fact was that the study of eugenics was still in its infancy; eugenists at present could only echo the words of the soothsayer in *Antony and Cleopatra*, "In Nature's infinite book of secrecy a little I can read."

MR. WILLIAM BROWN, M.A., D.Sc., lecturer on psychology in the King's College of the University of London, will during next term give a course of lectures on psychology for medical students and practitioners adapted to the syllabus of the examination for the Cambridge diploma on psychological medicine. The fee for the course, which includes twenty lectures each followed by practical work, is five guineas, and those who intend to join are requested to send their names to Dr. Brown or the Secretary at King's College. An introductory lecture will be given on Wednesday, April 23rd, at 4 p.m., to which admission will be free.

IT must be confessed that, of the thousands who die in the prime of life, most are roughly and prematurely wrenched from the tree of life, before coming, "like as a shock of corn cometh in his season," to that fruition when they would have been gathered full of years if not of honours. Doctors aim at prolonging life by entrenching mankind behind the defences of remedial measures during the fight with the arch destroyer, but also by spreading the principles of right living. The time to prepare for war is during peace. The time to ward off disease and death is during health. Every doctor is an evangelist of the gospel of preventive medicine. One of the latest is Dr. Lachlan Grant, who in a brightly written, optimistic contribution to the *Caledonian Medical Journal*, points out the conditions of health. Dr. Grant's suggestions on the subjects of sleep, food, work, exercise, recreation, social intercourse, and worry, will be endorsed by his fellow practitioners, although it is disconcerting to be told that tea and coffee as frequently made are "deadly poisons."

THE advantages of gas as a domestic fuel have lately been made the subject of two Cantor lectures, delivered at the house of the Royal Society of Arts by Mr. F. W. Goodenough, who claimed that the undoubted diminution of fog in London was due to the fact that during the last twenty years the number of gas-heated cooking and hot-water appliances sold, hired, or loaned in the metropolis had increased from a few thousands to nearly a million and a half, with a consequent reduction in the number of kitchen fires. He also pointed to the physical and moral value of the gas-cooker to the working-classes. It had a physical value because it insured for the working man a well-cooked and nourishing breakfast, and prevented the necessity which often arose with a slow and refractory kitchen grate, of beginning hard work without hot food. It had a moral value, for it gave to the working man the certain prospect of a hot and punctual supper, and thus conduced to evening sobriety. Although houses were still erected on the supposition that gas was at best only a second string to the kitchen bow, yet this cleanly and ideal domestic fuel had established itself, Mr. Goodenough claimed, from end to end of the social scale—from Mayfair kitchens with their multiple ovens and special roasting chambers, to the single all-round stove of the artisan's scullery. As to its economy compared with coal, he thought that the answer was forthcoming from the 750,000 housewives in London who used gas-cookers although compelled to prudence by means so scanty that they had to buy gas a penny at a time through automatic meters. The complaint of the wastefulness of gas in larger houses was rarely heard when the mistress of the house did her own cooking, and never when she had learnt how to use her stove. Some small prejudice still existed against gas-cooked food, but Mr. Goodenough maintained that the juices of the meat were retained, while the excess of fat was eliminated. It was proved that meat while being cooked in the gas-oven was emissive and not absorptive. Mr. Goodenough showed some forms of distillers and porous water sterilizers for purifying drinking water by a gas-heating arrangement. The purpose of the sterilizer was to bring the water just to the boiling point without entailing the insipidity which was characteristic of water boiled for a long time.

PRINCESS CHRISTIAN OF SCHLESWIG-HOLSTEIN presided over the ninth annual meeting of the Association for Promoting the Training and Supply of Midwives, which was held in Central Buildings, Westminster, on March 14th. The annual report for the year 1912 stated that twenty women had been entered for training, and the standard of general efficiency had been well maintained, so that the association might rest assured that its primary object of promoting the supply of midwives and furthering the purposes of the Midwives Act was being steadily carried out. This Act, however, was but feebly administered in some districts, and there was still a tendency in many places to ignore the fact that untrained women are at work, so that in this direction the association had still abundant work lying to its hand. The work at the East Ham Home continued to increase from year to year. The number of midwifery cases received there during the past year amounted to 843, and the monthly cases to 243, making a total of 1,086 confinements. The average number of deliveries by each pupil was 42, that is, 22 more than the minimum number required by the Act. The care exercised by the Committee in the selection of candidates for training at the Home could be judged from the fact that out of the 390 women who applied for training in 1912 only 18 were accepted. The balance sheet for 1912 showed a decrease in subscriptions, and a slight increase in donations. The raising of further funds would therefore soon be necessary if the work of the association was to be properly carried out. As it was, the future, even apart from money matters, was far from reassuring. The Insurance Act had created an entirely new and most difficult situation in the medical and midwifery world; and though the association was not an employing body, and had, therefore, no direct responsibility laid upon it by the Act, the position demanded the most careful thought and action if the future of the midwifery profession was to be assured. The report and balance sheet having been adopted, a short address was delivered by Dr. Christopher Addison, M.P., on "Midwifery and the Maternity Benefit," in the course of which he pointed out that a woman was entitled to the benefit even when attended only by a midwife and a pupil. At his suggestion it was unanimously decided that a deputation should be sent from the association to the Insurance Commissioners to point out the numerous difficulties which at present arise in connexion with the payment of the maternity benefit under the Act.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

MAJOR C. B. LAWSON, R.A.M.C., asks for references to literature relating to the treatment of goitre by iodine cataphoresis.

SOUTH WALIAN asks to be recommended a suitable portable battery for cautery work in general practice. He has found a dry cell battery unsatisfactory, inasmuch as after being left unused for a couple of months, it failed to give a sufficient current. A wet battery is inconvenient, as it must be filled with fluid every time it is used, and may then not give a sufficient current.

H. E. J. would be glad to hear of comparative results obtained in the treatment of rheumatoid arthritis with (*a*) continuous counter-irritation, and (*b*) oral administration of radio-active drinking water.

*** With regard to the internal administration of radio-active (emanation) water, our correspondent might consult the report of the Radium Institute (BRITISH MEDICAL JOURNAL, January 25th, 1913).

CARIES OF THE MILK TEETH.

A. M. W. writes: As a school inspector I find in the course of my examination of a very large number of children during the year that a high percentage are suffering from decayed teeth. In the district in which I work there is no dentist employed to attend to these children, and so all I can do is advise all parents to obtain treatment, and I usually advocate it on these grounds: (1) In order to prevent dyspepsia and other troubles connected with the digestive organs, and consequent malnutrition due to the swallowing of septic organisms from the bad teeth. (2) To avoid the absorption into the system by the lymphatics of the septic material in the cavities, and also the possible entrance of tubercle bacilli. (3) To prevent the imperfect development of the jaw caused by deficient mastication owing to the tenderness of the gums consequent on the inflamed condition of the sockets. One may also mention the occurrence of alveolar abscess and the loss of good looks later in life due to absence of teeth, etc.

In spite of my efforts I find that a great many parents will not take the trouble to have anything done; they usually do not realize the necessity, and sometimes cannot pay for treatment, but those who do take their children to a doctor or dentist are often told (and this is the point of my letter) that they had better leave the teeth alone, especially if they are first teeth. Now this is very unfortunate, and puts me in rather an awkward position with the parents, school teachers, and school nurses, and I cannot understand the reason, unless it be that doctors and dentists do not like the trouble of treating children's teeth, or else that they think by extracting a carious primary tooth they will interfere with the growth of a secondary one. There may be some ground for this latter opinion, and it is in order to find out if such be the case that I am writing to you.

ANSWERS.

MAJOR R. MCCARRISON, I.M.S. (Kasauli, Punjab) writes: In answer to "Country Doctor," who asks for advice on the treatment of a case of goitre in a girl of 18 (BRITISH MEDICAL JOURNAL, February 8th, p. 320), I would suggest the use of a *coli* vaccine made from the patient's own strain of *coli* (from the faeces). Inoculations should be made at intervals of seven to ten days—an initial dose of 75 million gradually increased to 150 million. For particulars of this treatment "Country Doctor" might refer to my Milroy Lectures on the Etiology of Endemic Goitre for this year.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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Eight lines and under	0	4	0
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A whole column	2	13	4
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An average line contains six words.

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NOTE.—It is against the rules of the Post Office to receive *postes restante* letters addressed either in initials or numbers.